

Jon Epperson 09/804,893

=> d his

(FILE 'REGISTRY' ENTERED AT 11:15:09 ON 24 FEB 2003)

DEL HIS Y  
ACT LINKER/A

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L1 SCR 2043  
L2 SCR 1298  
L3 STR  
L4 75635 SEA FILE=REGISTRY SSS FUL L3 AND L2 NOT L1  
-----  
L5 1 S 111-46-6  
ACT RINGS/A  
-----  
L6 ( 16)SEA FILE=REGISTRY ABB=ON PLU=ON 49876.1/RID  
L7 ( 2103)SEA FILE=REGISTRY ABB=ON PLU=ON 10471.4/RID  
L8 ( 351)SEA FILE=REGISTRY ABB=ON PLU=ON 8866.2/RID  
L9 ( 5)SEA FILE=REGISTRY ABB=ON PLU=ON 10471.20/RID  
L10 2475 SEA FILE=REGISTRY ABB=ON PLU=ON L7 OR L6 OR L8 OR L9  
-----  
L11 30 S L4 AND L10  
L12 0 S L5 AND L10

FILE 'HCAPLUS' ENTERED AT 11:19:38 ON 24 FEB 2003

L13 15 S L11  
L14 10555 S L5  
L15 2449 S L10  
L16 3 S L14 AND L15  
L17 19022 S BIOMOLEC? OR BIOMARKER?  
L18 2 S L15 AND L17  
L19 4257 S LINKER#  
L20 6 S L19 AND L15

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=> fil reg  
FILE 'REGISTRY' ENTERED AT 11:22:16 ON 24 FEB 2003  
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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 21 FEB 2003 HIGHEST RN 493666-74-3  
DICTIONARY FILE UPDATES: 21 FEB 2003 HIGHEST RN 493666-74-3

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:  
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d que stat 14  
L1 SCR 2043  
L2 SCR 1298  
L3 STR  
O—CH<sub>2</sub>·CH<sub>2</sub>·O—CH<sub>2</sub>·CH<sub>2</sub>  
1 2 3 4 5 6

*covers linker for all structures*

NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE  
L4 75635 SEA FILE=REGISTRY SSS FUL L3 AND L2 NOT L1

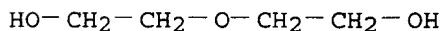
100.0% PROCESSED 342162 ITERATIONS 75635 ANSWERS  
SEARCH TIME: 00.00.03

=> d que 15; d 15  
L5 1 SEA FILE=REGISTRY ABB=ON PLU=ON 111-46-6

L5 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS  
RN 111-46-6 REGISTRY  
CN Ethanol, 2,2'-oxybis- (9CI) (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Diethylene glycol (8CI)

## OTHER NAMES:

CN .beta.,.beta.-Dihydroxydiethyl ether  
 CN 1,5-Dihydroxy-3-oxapentane  
 CN 2,2'-Oxybis[ethanol]  
 CN 2,2'-Oxydiethanol  
 CN 2,2'-Oxyethanol  
 CN 2-(2-Hydroxyethoxy)ethanol  
 CN 2-Hydroxyethoxyethanol  
 CN 3-Oxapentamethylene-1,5-diol  
 CN 3-Oxapentane-1,5-diol  
 CN Bis(.beta.-hydroxyethyl) ether  
 CN Bis(2-hydroxyethyl) ether  
 CN Brecolane NDG  
 CN Deactivator E  
 CN DEG  
 CN Dicol  
 CN Digenos  
 CN Diglycol  
 CN Digol  
 CN Dissolvant APV  
 CN Ethylene diglycol  
 CN TL4N  
 FS 3D CONCORD  
 DR 4669-26-5  
 MF C4 H10 O3  
 CI COM  
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOBUSINESS,  
     BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,  
     CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU,  
     DETERM\*, DIOGENES, DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2,  
     ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HODOC\*, HSDB\*, IFICDB, IFIPAT, IFIUDB,  
     IPA, MEDLINE, MRCK\*, MSDS-OHS, NIOSHTIC, PDLCOM\*, PIRA, PROMT, RTECS\*,  
     SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB  
     (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
     (\*\*Enter CHEMLIST File for up-to-date regulatory information)



- may be represented as a  
 separate structure,  
 (i.e. not attached to  
 B.D or X)

## \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

10535 REFERENCES IN FILE CA (1962 TO DATE)  
 1320 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 10552 REFERENCES IN FILE CAPLUS (1962 TO DATE)  
 7 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d que.110

L6 (	16) SEA FILE=REGISTRY ABB=ON	PLU=ON	49876.1/RID
L7 (	2103) SEA FILE=REGISTRY ABB=ON	PLU=ON	10471.4/RID
L8 (	351) SEA FILE=REGISTRY ABB=ON	PLU=ON	8866.2/RID
L9 (	5) SEA FILE=REGISTRY ABB=ON	PLU=ON	10471.20/RID
L10	2475 SEA FILE=REGISTRY ABB=ON	PLU=ON	L7 OR L6 OR L8 OR L9

=> d his 111-112

} covers  
 all 4  
 ring structures  
 for Dyes

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(FILE 'REGISTRY' ENTERED AT 11:15:09 ON 24 FEB 2003)

L11 30 S L4 AND L10  
L12 0 S L5 AND L10

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 11:22:54 ON 24 FEB 2003

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FILE COVERS 1907 - 24 Feb 2003 VOL 138 ISS 9

FILE LAST UPDATED: 23 Feb 2003 (20030223/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d his 113-

(FILE 'HCAPLUS' ENTERED AT 11:19:38 ON 24 FEB 2003)

L13 15 S L11  
L14 10555 S L5  
L15 2449 S L10  
L16 3 S L14 AND L15  
L17 19022 S BIOMOLEC? OR BIOMARKER?  
L18 2 S L15 AND L17  
L19 4257 S LINKER#  
L20 6 S L19 AND L15

FILE 'REGISTRY' ENTERED AT 11:22:16 ON 24 FEB 2003

FILE 'HCAPLUS' ENTERED AT 11:22:54 ON 24 FEB 2003

=> d .ca hitstr 113 1-15;d .ca hitstr 116 1-3;d .ca hitstr 118 1-2;d .ca hitstr 120,  
1-6

L13 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2002:600268 HCAPLUS  
DOCUMENT NUMBER: 137:284703  
TITLE: Self-Assembly of Liquid Crystal Semiconductor  
Molecules at the Air/Water Interface  
AUTHOR(S): Sui, Guodong; Orbulescu, Jhony; Mabrouki, Mustapha;  
Micic, Miodrag; Leblanc, Roger M.; Liu, Shenggao;  
Cormier, Russell A.; Gregg, Brian A.  
CORPORATE SOURCE: Department of Chemistry, University of Miami, Coral  
Gables, FL, 33124, USA  
SOURCE: Journal of Physical Chemistry B (2002), 106(36),

9335-9340

CODEN: JPCBFK; ISSN: 1520-6106

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Self-assembly property of a new liq. cryst. perylene diimide deriv., N,N'-bis[3-[2-[2-(2-cyanoethoxy)ethoxy]ethoxy]propyl]perylene-3,4:9,10-tetracarboxyldiimide (PPE4CN), was studied at the air/H<sub>2</sub>O interface by epifluorescence microscopy and on mica by environmental SEM (ESEM) and at. force microscopy (AFM). The self-assembly process started at surface pressure 5 mN/m. Mol. orientation changes of the PPE4CN mols. accompanied the self-assembly process at the air/H<sub>2</sub>O interface. The mol. orientation changed from face-on to edge-on orientation in the self-assembly process. These orientation changes were strongly supported by the anal. of the surface pressure-area isotherms, and by the topog. measurements at micro and nanoscale levels, including ESEM and AFM microscopies.

CC 66-1 (Surface Chemistry and Colloids)

Section cross-reference(s): 75

IT 401606-54-0

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
(self-assembly of PPE4CN liq. crystal semiconductor mols. at air/water interface)

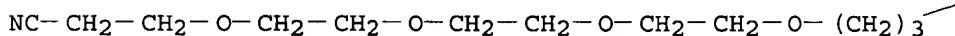
IT 401606-54-0

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
(self-assembly of PPE4CN liq. crystal semiconductor mols. at air/water interface)

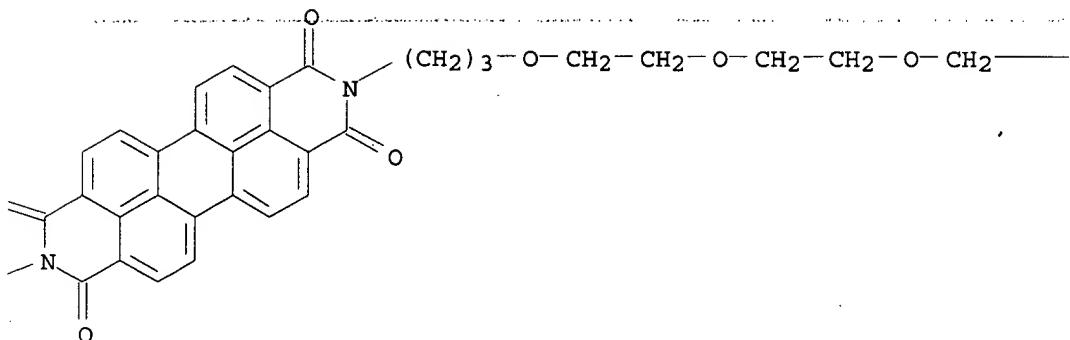
RN 401606-54-0 HCPLUS

CN 4,7,10,13-Tetraoxahexadecanenitrile, 16,16'-(1,3,8,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-diyl)bis- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

 $-\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}_2-\text{CN}$ 

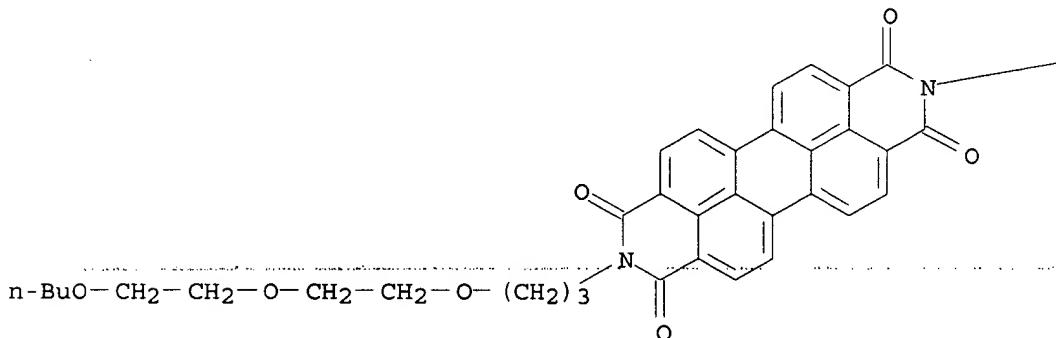
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 2 OF 15 HCPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2002:590897 HCPLUS  
 DOCUMENT NUMBER: 137:286276  
 TITLE: Edge transfer lithography of molecular and nanoparticle materials  
 AUTHOR(S): Cherniavskaya, Oksana; Adzic, Aleksandar; Knutson, Carl; Gross, Benjamin J.; Zang, Ling; Liu, Ruchuan; Adams, David M.  
 CORPORATE SOURCE: Department of Chemistry, Columbia University, New York, NY, 10027, USA  
 SOURCE: Langmuir (2002), 18(18), 7029-7034  
 CODEN: LANGD5; ISSN: 0743-7463  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A simple and general method which we call edge transfer lithog. has been developed for large-area patterning of mol. and nanoparticle materials with line-widths as small as 60 nm. The procedure employs std. "ink" and "stamp" microcontact printing techniques and takes advantage of the intrinsic topog. character of micropatterned elastomeric stamps and discontinuous dewetting behavior of ink solns. to selectively apply ink within the recesses of the stamp. In this way, mols. or particles are delivered from the stamp to a solid substrate of interest selectively along the edges of the stamp features. Siloxane self-assembled monolayers (SAMs) and titanium dioxide ( $\text{TiO}_2$ ) nanoparticle materials are directly patterned on glass substrates at nanometer resoln. Alkyl siloxane patterned SAM surfaces are used as a template structure for the guided self-assembly of mol. and nanoparticle materials. The surfaces are characterized by lateral force microscopy and noncontact at. force microscopy.  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 IT 199606-43-4

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RL: NUU (Other use, unclassified); USES (Uses)  
(self-assembly of liq. cryst. perylene diimide on alkylsilane SAM  
micropatterns produced by edge transfer lithog.)  
IT 199606-43-4  
RL: NUU (Other use, unclassified); USES (Uses)  
(self-assembly of liq. cryst. perylene diimide on alkylsilane SAM  
micropatterns produced by edge transfer lithog.)  
RN 199606-43-4 HCPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— (CH<sub>2</sub>)<sub>3</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—OBu-n

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 3 OF 15 HCPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2002:47589 HCPLUS  
DOCUMENT NUMBER: 136:103835  
TITLE: Dye compounds having terminal hydroxy, carboxylic acid/ester or amino group, their production and their use  
INVENTOR(S): Kaul, Bansi Lal; Graciet, Jean-Christophe  
PATENT ASSIGNEE(S): Clariant Finance (Bvi) Limited, Virgin I. (Brit.)  
SOURCE: Eur. Pat. Appl., 10 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1172418	A2	20020116	EP 2001-810694	20010712
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6462128	B1	20021008	US 2000-616356	20000714
JP 2002097381	A2	20020402	JP 2001-213191	20010713

US 2002112297 A1 20020822 US 2001-905803 20010713  
 PRIORITY APPLN. INFO.: US 2000-616356 A 20000714  
 GB 2001-4236 A 20010221

OTHER SOURCE(S): MARPAT 136:103835

AB This invention relates to new fluorescent or non-fluorescent dye compds. having a terminal hydroxy, carboxylic acid/ester or amino group and a process for their prepn. The new fluorescent or non-fluorescent dye compds. are useful as colorants for prep. colored synthetic polymer resins, for dyeing or printing homo- or mixed synthetic, semi-synthetic or natural polymers or substrates or for prep. inks. The dye compds. provide excellent properties, esp. high temp. stability and easy applicability, with the functional groups providing a means for covalent bonding to the substrate. In an example, benzo[k,l]thioxanthene-3,4-dicarboxylic anhydride was imidized with 6-aminohexanol to give an orange dye having a 6-hydroxyhexyl group.

IC ICM C09B069-10

ICS C09B005-62; C09B057-14

ICA C08K005-3437; C09D011-02

CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

Section cross-reference(s): 27, 28

IT 289039-13-0P 389066-83-5P 389066-86-8P 389066-87-9P 389066-88-0P  
**389569-34-0P**

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (red dye; prodn. of dyes having terminal hydroxy, carboxylic acid/ester or amino group)

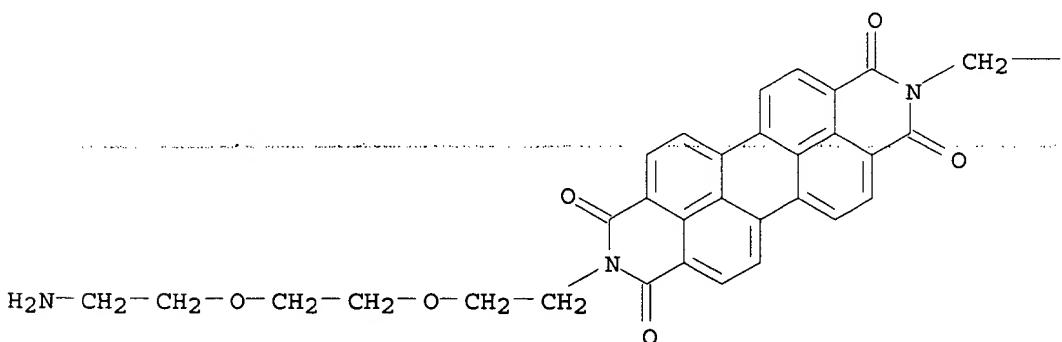
**389569-34-0P**

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (red dye; prodn. of dyes having terminal hydroxy, carboxylic acid/ester or amino group)

RN 389569-34-0 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
 2,9-bis[2-[2-(2-aminoethoxy)ethoxy]ethyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— CH<sub>2</sub>— O— CH<sub>2</sub>— CH<sub>2</sub>— O— CH<sub>2</sub>— CH<sub>2</sub>— NH<sub>2</sub>

L13 ANSWER 4 OF 15 HCPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2002:22691 HCPLUS  
DOCUMENT NUMBER: 136:208042  
TITLE: Self-Organizing Liquid Crystal Perylene Diimide Thin Films: Spectroscopy, Crystallinity, and Molecular Orientation  
AUTHOR(S): Liu, Sheng-Gao; Sui, Guodong; Cormier, Russell A.; Leblanc, Roger M.; Gregg, Brian A.  
CORPORATE SOURCE: National Renewable Energy Laboratory, Golden, CO, 80401, USA  
SOURCE: Journal of Physical Chemistry B (2002), 106(6), 1307-1315  
CODEN: JPCBFK; ISSN: 1089-5647  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Three different liq. crystal (LC) perylene diimides were studied with respect to the optical and phys. characteristics of their thin films. Films were prep'd. by spin-coating, vacuum evapn., and Langmuir-Blodgett (LB) techniques on substrates such as microscope glass, In-Sn oxide-coated glass and highly oriented pyrolytic graphite. Films were characterized by polarized optical microscopy, absorption and fluorescence emission spectroscopy, and x-ray diffraction. The self-organizing ability of the LC perylene diimides allows them to rapidly reach a stable, low-energy configuration, unlike many thin film materials, and reveals that they are driven to organize and orient in a highly specific fashion, independent of substrate or deposition method. The mols. tend to form a slipped stack arrangement that maximizes attractive .pi.-.pi. electronic interactions, with the .pi.-.pi. stacking axis oriented parallel to the substrate. Relative to the substrate plane, the LC 1 perylene cores are tilted .apprx.47.degree. along the stacking axis and .apprx.58.degree. perpendicular to this direction. The two other LCs have similar structures. An anal. of the intermol. electronic and steric interactions, and of the interactions between the mols. and the substrates, is proposed to explain why this is such a strongly preferred orientation. The implications for the potential use of such mols. in electronic and photovoltaic applications is discussed.

CC 75-11 (Crystallography and Liquid Crystals)  
Section cross-reference(s): 28, 73, 74

IT 401612-72-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prepn. and reaction with acrylonitrile)

IT 401606-54-0P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(prepn. and self-organizing liq. crystal perylene diimide thin films: spectroscopy, crystallinity, and mol. orientation)

IT 67075-37-0 199606-43-4 199606-46-7  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
(self-organizing liq. crystal perylene diimide thin films: spectroscopy, crystallinity, and mol. orientation)

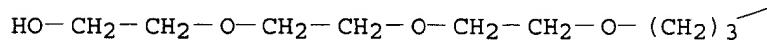
IT 401612-72-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prepn. and reaction with acrylonitrile)

RN 401612-72-4 HCPLUS

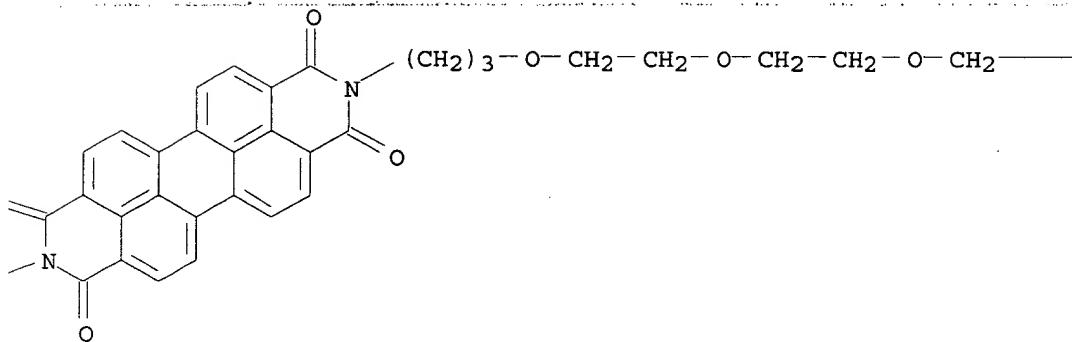
Jon Epperson 09/804,893

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[3-[2-[2-(2-hydroxyethoxy)ethoxy]ethoxy]propyl]- (9CI) (CA INDEX  
NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

— CH<sub>2</sub> — OH

IT 401606-54-0P

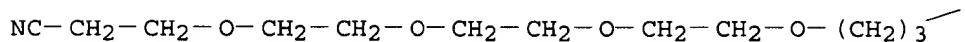
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(prepn. and self-organizing liq. crystal perylene diimide thin films:  
spectroscopy, crystallinity, and mol. orientation)

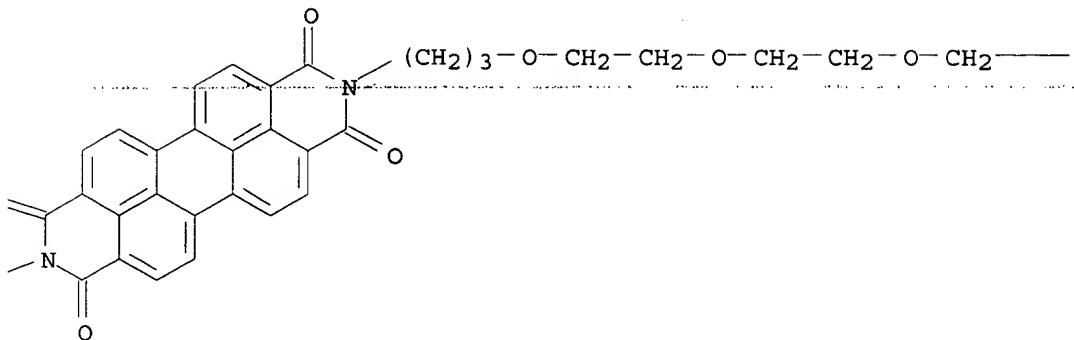
RN 401606-54-0 HCAPLUS

CN 4,7,10,13-Tetraoxahexadecanenitrile, 16,16'-(1,3,8,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-diyl)bis- (9CI) (CA INDEX NAME)

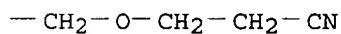
PAGE 1-A



PAGE 1-B



PAGE 1-C



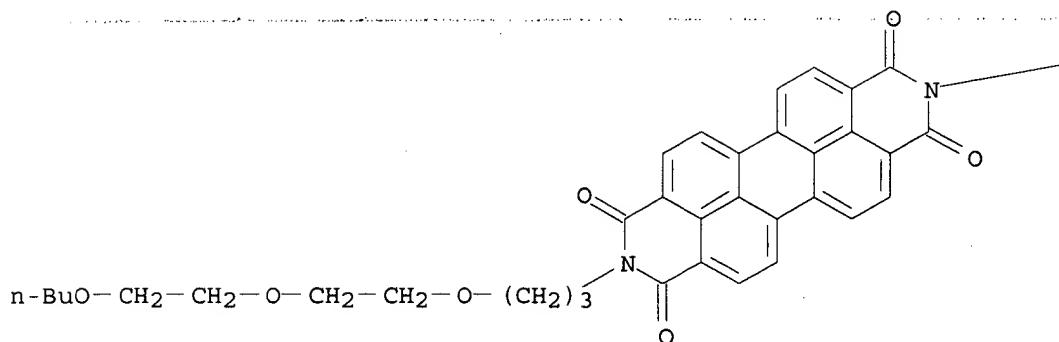
IT 199606-43-4 199606-46-7

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical-process); PROC (Process).  
(self-organizing liq. crystal perylene diimide thin films:  
spectroscopy, crystallinity, and mol. orientation)

RN 199606-43-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

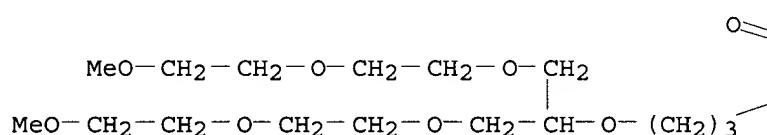


PAGE 1-B

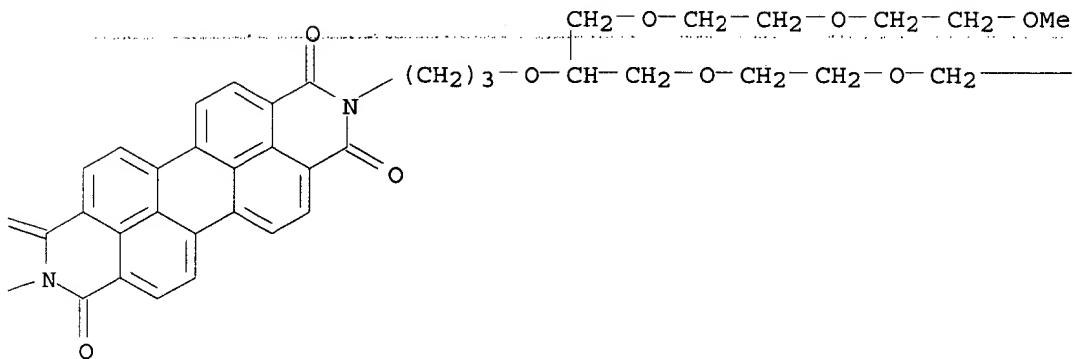
- (CH<sub>2</sub>)<sub>3</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>-OBu-n

RN 199606-46-7 HCPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[4-[2-[2-(2-methoxyethoxy)ethoxy]methyl]-4,7,10,13-  
tetraoxatetradec-1-yl] - (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

 $\text{---CH}_2-\text{OMe}$ 

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:693662 HCAPLUS  
 DOCUMENT NUMBER: 135:269657  
 TITLE: Biomarkers for the labeling, visual detection and quantification of biomolecules  
 INVENTOR(S): Bevers, Susan Ann; Andrade, Rodrigo Bohn; Alexandrov, Kiril Stefan; Zdraveski, Zoran Zare  
 PATENT ASSIGNEE(S): Genigma Corporation, USA  
 SOURCE: PCT Int. Appl., 54 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001069254	A2	20010920	WO 2001-US7885	20010313
WO 2001069254	A3	20020530		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
US 2002012947	A1	20020131	US 2001-804893	20010313
EP 1266222	A2	20021218	EP 2001-918584	20010313
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR		

PRIORITY APPLN. INFO.: US 2000-189264P P 20000314  
                           US 2000-209188P P 20000605  
                           WO 2001-US7885 W 20010313

OTHER SOURCE(S): MARPAT 135:269657

AB This invention relates to the detection of biomols. In particular, the invention relates to biomarkers for the labeling, visual detection and quantification of biomols. The invention provides visually detectable biomols. and reagents for their prepn., as well as methods for visually detecting a biomol. and for detg. the size of a biomol. The labeled biomols. of the invention are intensely colored and can be readily obsd. by visual inspection, without prior illumination or chem. or enzymic activation.

IC ICM G01N033-532  
     ICS C12Q001-68; G01N033-52; G01N033-68; C09B062-00

CC 9-14 (Biochemical Methods)

IT 198-55-0DP, Perylene, derivs. 361335-58-2P 361335-59-3P  
     361335-60-6P 361335-61-7P 361335-62-8P  
     RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
         (biomarkers for labeling, visual detection and quantification of biomols.)

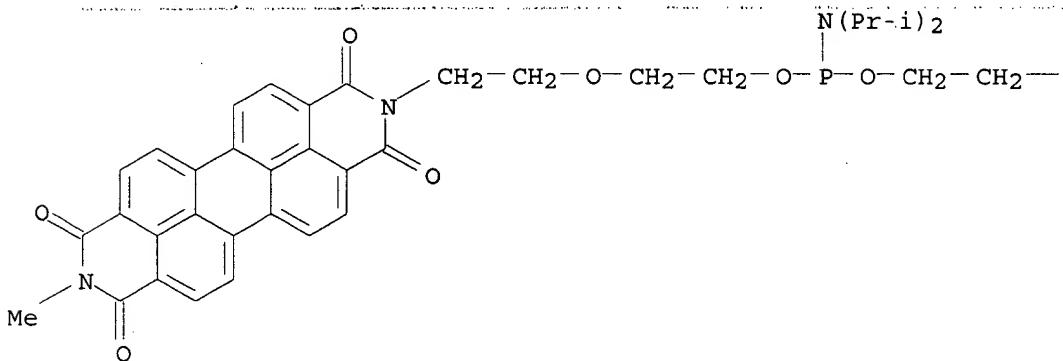
IT 118129-60-5P, 1,7-Dibromoperylene-3,4,9,10-tetracarboxylic dianhydride  
     215297-17-9P 286014-33-3P 361335-63-9P 361335-64-0P  
     361335-65-1P 361335-67-3P 361335-69-5P  
     361335-71-9P  
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
         (biomarkers for labeling, visual detection and quantification of biomols.)

IT 361335-58-2P 361335-59-3P 361335-60-6P  
     RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
         (biomarkers for labeling, visual detection and quantification of biomols.)

RN 361335-58-2 HCAPLUS

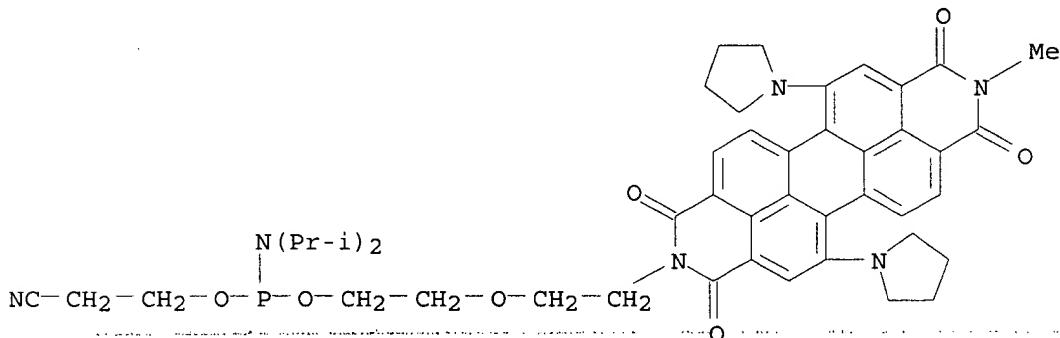
CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl  
     2-[2-(3,8,9,10-tetrahydro-9-methyl-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

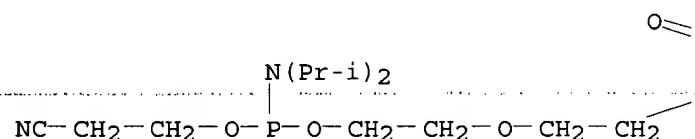


— CN

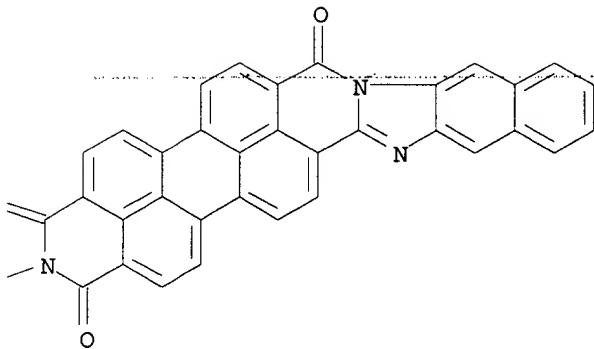
RN 361335-59-3 HCAPLUS  
CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl  
2-[2-(3,8,9,10-tetrahydro-9-methyl-1,3,8,10-tetraoxo-5,12-di-1-pyrrolidinylanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)



RN 361335-60-6 HCAPLUS  
CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl  
2-[2-(3,8-dihydro-1,3,8-trioxoisoquino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-a]isoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)



PAGE 1-B

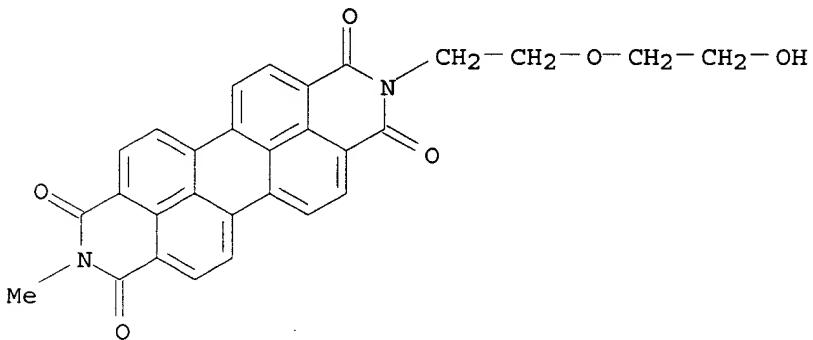


IT 286014-33-3P 361335-64-0P 361335-67-3P  
361335-69-5P 361335-71-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(biomarkers for labeling, visual detection and quantification of biomols.)

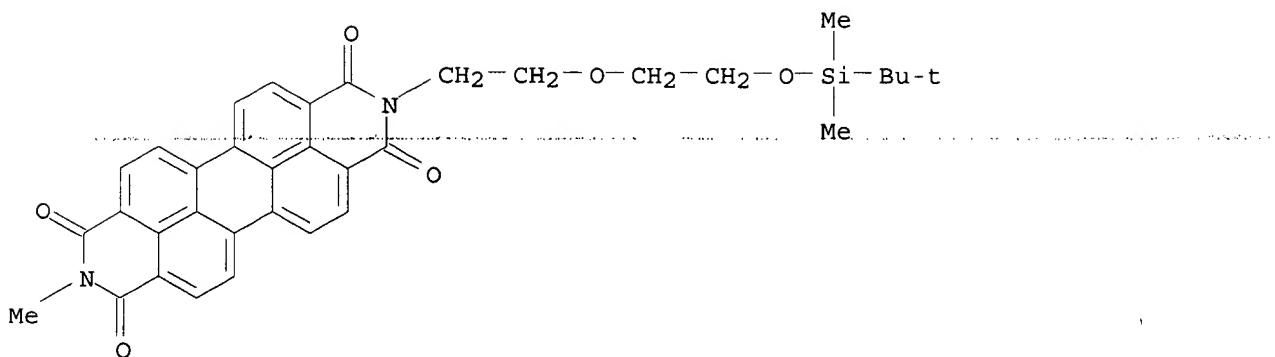
RN 286014-33-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-(2-hydroxyethoxy)ethyl]-9-methyl- (9CI) (CA INDEX NAME)



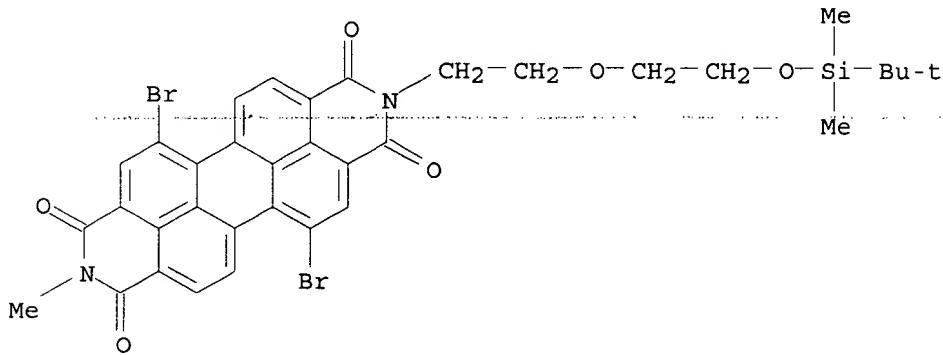
RN 361335-64-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxyethyl]-9-methyl- (9CI) (CA INDEX NAME)



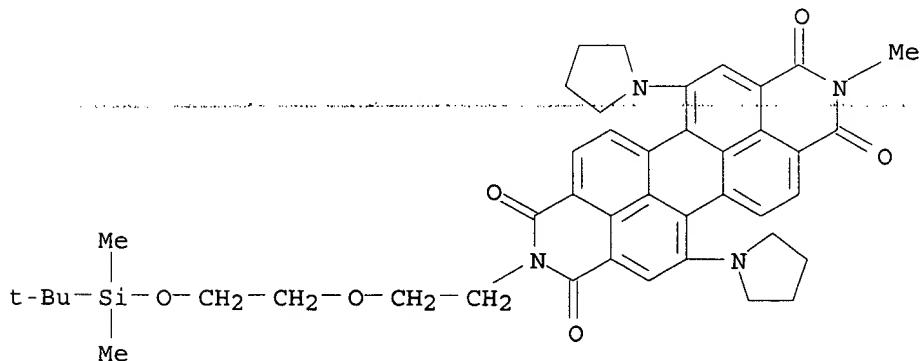
RN 361335-67-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
5,12-dibromo-2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-  
9-methyl- (9CI) (CA INDEX NAME)



RN 361335-69-5 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-methyl-5,12-  
di-1-pyrrolidinyl- (9CI) (CA INDEX NAME)

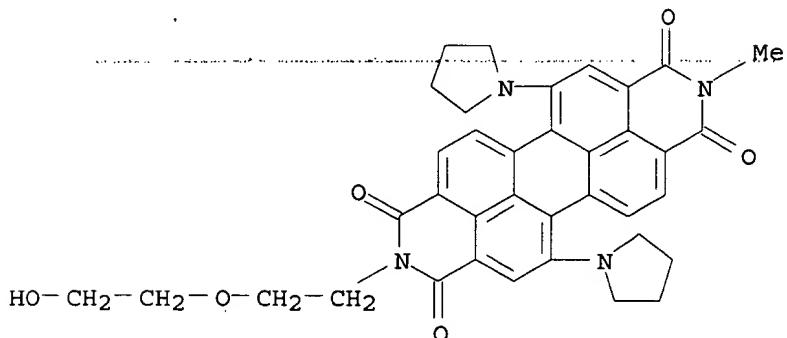


RN 361335-71-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,

Jon Epperson 09/804,893

2-[2-(2-hydroxyethoxy)ethyl]-9-methyl-5,12-di-1-pyrrolidinyl- (9CI) (CA INDEX NAME)



L13 ANSWER 6 OF 15 HCPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:527854 HCPLUS

DOCUMENT NUMBER: 135:265073

TITLE: Doping molecular semiconductors. n-Type doping of a liquid crystal perylene diimide

AUTHOR(S): Gregg, Brian A.; Cormier, Russell A.

CORPORATE SOURCE: National Renewable Energy Laboratory, Golden, CO, 80401, USA

SOURCE: Journal of the American Chemical Society (2001), 123(32), 7959-7960

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A n-type dopant was synthesized for the liq. crystal and mol. semiconductor perylene diimide deriv. (PPEEB). The zwitterionic dopant is a reduced (for n-type) or oxidized (for p-type) deriv. of the host mol. A scheme for the synthesis of the dopant precursor is given. To produce the dopant, the dopant precursor was dispersed in dry THF at room temp. under inert-gas atm. followed by addn. of Na to reduce the PPEEB and stirring for several hours. Then, a series of n-doped PPEEB films was fabricated by adding aliquots of the dopant soln. to solns. of PPEEB in THF followed by spin coating them on Pt interdigitated electrodes. These films were characterized by I-V curves and cond. measurements as a function of the dopant concn.

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 28, 75

IT 199606-43-4

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(PPEEB; n-type doping of a liq.-cryst. mol. semiconductor perylene diimide and its elec. characterization)

IT 361459-33-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(precursor; prepn. of n-type and p-type dopants for liq.-cryst. mol. semiconductor perylene diimide)

IT 361459-34-9P

RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

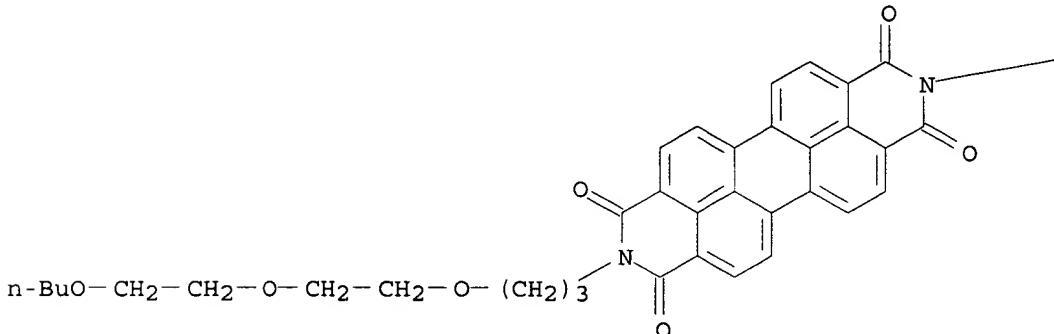
(prepn. of n-type and p-type dopants for liq.-cryst. mol. semiconductor

IT perylene diimide)  
199606-43-4  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
(PPEEB; n-type doping of a liq.-cryst. mol. semiconductor perylene  
diimide and its elec. characterization)

RN 199606-43-4 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

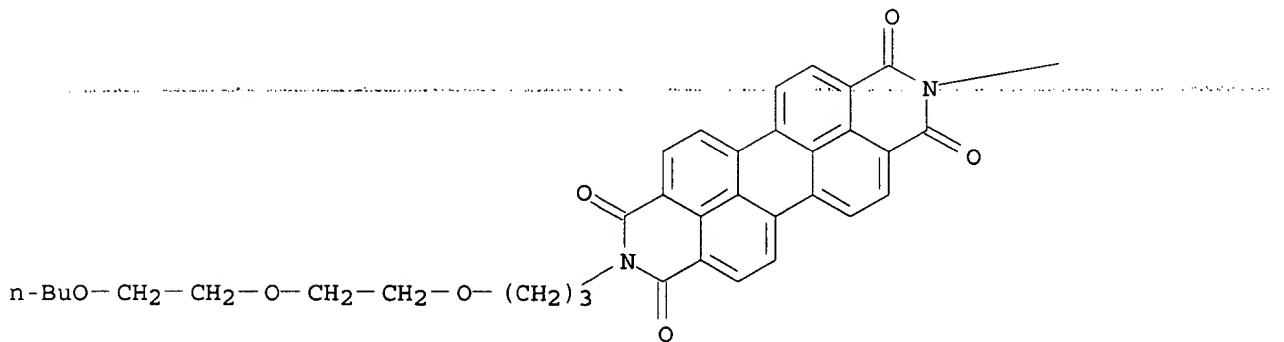
- (CH<sub>2</sub>)<sub>3</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>-OBu-n

IT 361459-33-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(precursor; prepn. of n-type and p-type dopants for liq.-cryst. mol.  
semiconductor perylene diimide)

RN 361459-33-8 HCPLUS

CN Ethanaminium, 2-[2-[2-[3-[2-[2-(2-butoxyethoxy)ethoxy]propyl]-3,8,9,10-  
tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-  
2(1H)-yl]propoxy]ethoxy]ethoxy]-N,N,N-trimethyl-, chloride (9CI) (CA  
INDEX NAME)

PAGE 1-A



● Cl<sup>-</sup>

PAGE 1-B

—(CH<sub>2</sub>)<sub>3</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—N<sup>+</sup>Me<sub>3</sub>

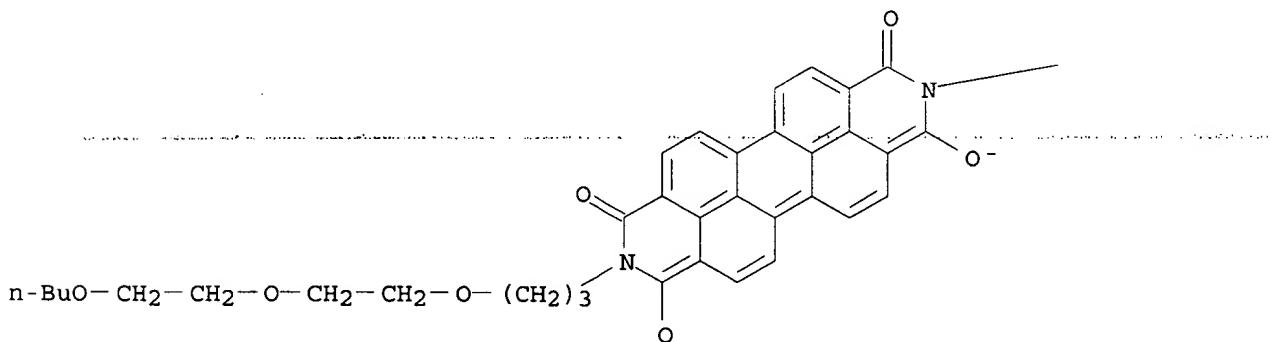
IT 361459-34-9P

RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(prepn. of n-type and p-type dopants for liq.-cryst. mol. semiconductor perylene diimide)

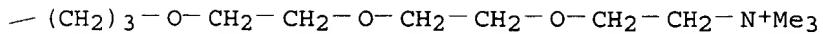
RN 361459-34-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-1-yloxy, 2-[3-[2-(2-butoxyethoxy)ethoxy]propyl]-9-(13,13-dimethyl-4,7,10-trioxa-13-azoniatetradec-1-yl)-2,3,8,9-tetrahydro-10-hydroxy-3,8-dioxo-, inner salt (9CI) (CA INDEX NAME)

PAGE 1-A



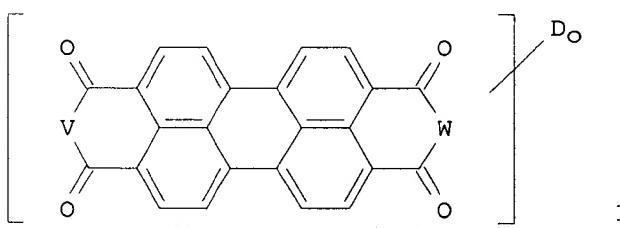
PAGE 1-B



REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 7 OF 15 HCPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2000:512711 HCPLUS  
 DOCUMENT NUMBER: 133:121711  
 TITLE: Pigment preparations containing several perylene derivatives  
 INVENTOR(S): Weber, Joachim; Urban, Manfred; Opravil, Manfred;  
 Dietz, Erwin  
 PATENT ASSIGNEE(S): Clariant G.m.b.H., Germany  
 SOURCE: Ger. Offen., 31 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19902907	A1	20000727	DE 1999-19902907	19990126
EP 1024177	A2	20000802	EP 2000-100711	20000114
EP 1024177	A3	20020320		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000297224	A2	20001024	JP 2000-16269	20000125
US 6413309	B1	20020702	US 2000-491318	20000125
PRIORITY APPLN. INFO.:			DE 1999-19902907 A	19990126
OTHER SOURCE(S):	MARPAT	133:121711		
GI				



AB The preps., contg. (a) .gtoreq.1 org. pigment, (b1) .gtoreq.1 pigment dispersant of the formula I [V = W = NZ; each Z = amino- or OH-contg. org group [1 Z may be H, OH, NH<sub>2</sub>, (un)substituted Ph or C1-20 alkyl]; O = O], and (b2) .gtoreq.1 acid group-contg. perylene pigment dispersant [I; each D = Cl, Br; V = O, NR<sub>1</sub>, W; R<sub>1</sub> = H, (un)substituted Ph or C1-20 alkyl; W = NR<sub>2</sub>Y- X+; R<sub>2</sub> = spacer group; X = H, 1 equiv metal ion; Y = CO<sub>2</sub>, SO<sub>3</sub>; O = O-6], have favorable rheol. and coloristic characteristics. Thus, I [V = NMe, W = N(CH<sub>2</sub>)<sub>2</sub>SO<sub>3</sub>H; O = O] (II) and I [V = NMe, W = N(CH<sub>2</sub>)<sub>3</sub>NH(CH<sub>2</sub>)<sub>2</sub>NH(CH<sub>2</sub>)<sub>3</sub>NH<sub>2</sub>; O = O] (III) were prep'd. by condensing I (V = NMe, W = O; O = O) with taurine and [H<sub>2</sub>N(CH<sub>2</sub>)<sub>3</sub>NHCH<sub>2</sub>]<sub>2</sub>, resp. A mixt. of

10 parts C.I. Pigment Red 179 with 0.45 part each of II and III was used as the base for a high-solids transparent coating with good rheol.

IC ICM C09B067-20

CC 42-6 (Coatings, Inks, and Related Products)  
Section cross-reference(s): 25

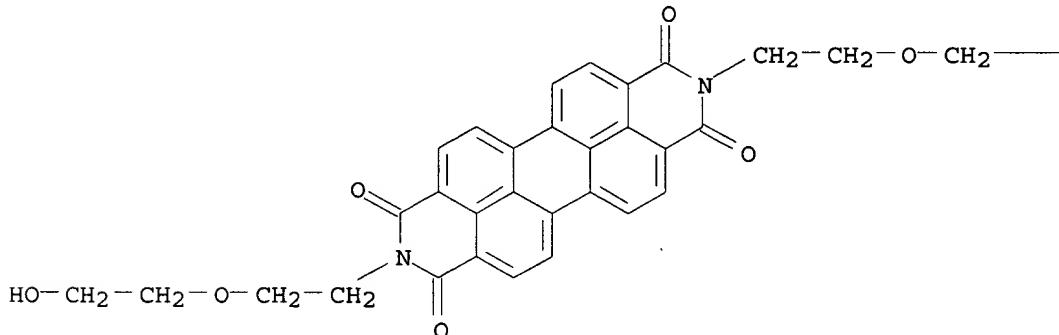
IT 85224-18-6P 134993-64-9P, N,N'-Bis(2-sulfoethyl)-3,4,9,10-perylenetetracarboxylic diimide 135934-43-9P 143992-60-3P, N,N'-Bis(2-hydroxypropyl)-3,4,9,10-perylenetetracarboxylic diimide 162065-10-3P, N,N'-Bis(2-carboxyethyl)-3,4,9,10-perylenetetracarboxylic diimide 213130-95-1P 238755-69-6P 238755-70-9P 238755-71-0P 238755-72-1P 238755-74-3P 238755-75-4P 238755-78-7P 238755-79-8P 238755-80-1P 286014-28-6P 286014-29-7P 286014-30-0P 286014-33-3P 286014-36-6P 286014-39-9P 286014-40-2P 286014-43-5P 286014-45-7P 286014-47-9P 286014-48-0P 286014-52-6P 286014-54-8P 286014-57-1P 286014-59-3P 286014-60-6P 286014-61-7P 286014-62-8P 286014-63-9P 286014-64-0P 286014-65-1P 286014-66-2P 286014-67-3P 286014-69-5P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(dispersant; pigment preps. contg. several perylene derivs.)

IT 238755-74-3P 238755-79-8P 238755-80-1P  
286014-33-3P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(dispersant; pigment preps. contg. several perylene derivs.)

RN 238755-74-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

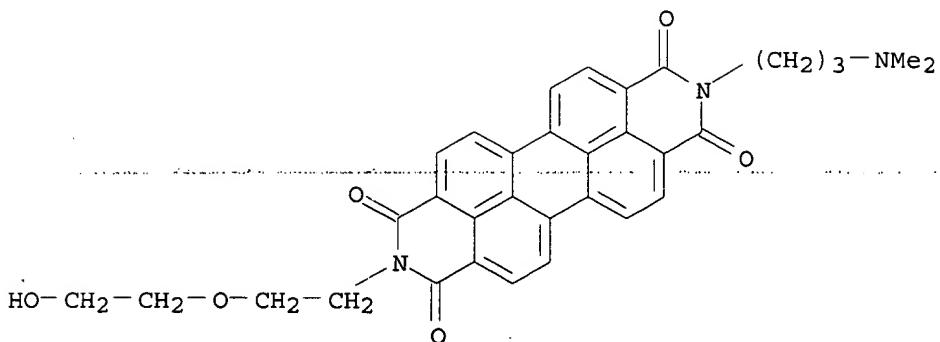
PAGE 1-A



PAGE 1-B

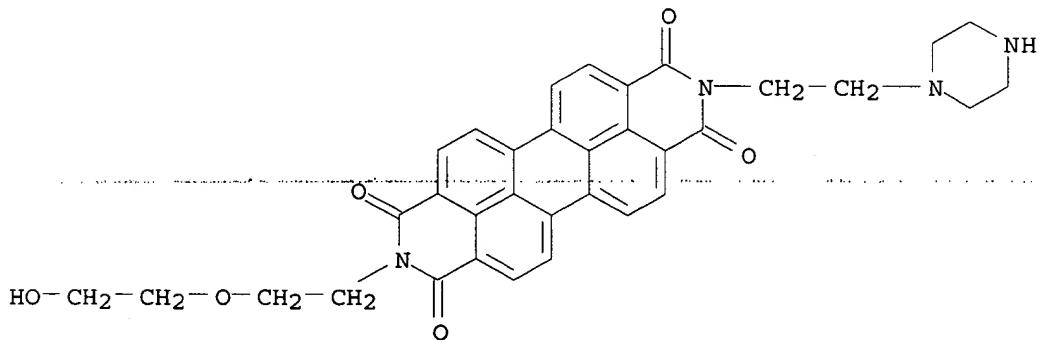
— CH<sub>2</sub> — OH

RN 238755-79-8 HCAPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2-[3-(dimethylamino)propyl]-9-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)



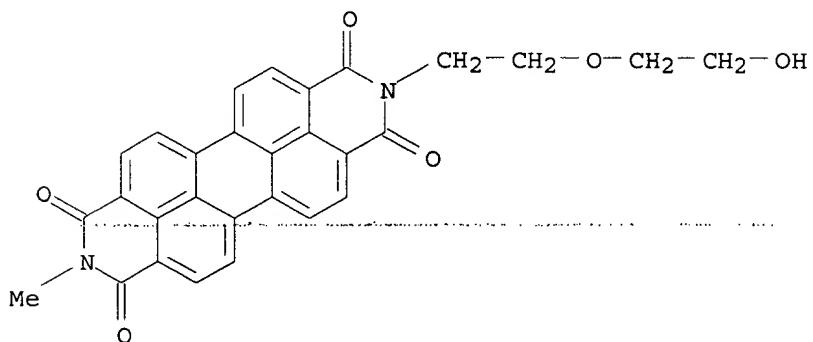
RN 238755-80-1 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-(2-hydroxyethoxy)ethyl]-9-[2-(1-piperazinyl)ethyl]- (9CI) (CA INDEX  
NAME)



RN 286014-33-3 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-(2-hydroxyethoxy)ethyl]-9-methyl- (9CI) (CA INDEX NAME)



L13 ANSWER 8 OF 15 HCPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:367285 HCPLUS

DOCUMENT NUMBER: 133:193411

TITLE: Naphthalene- and Perylene-Based Linkers for the  
Stabilization of Hairpin Triples

AUTHOR(S): Bevers, Susan; Schutte, Susan; McLaughlin, Larry W.  
CORPORATE SOURCE: Department of Chemistry Merkert Chemistry Center,  
Boston College, Chestnut Hill, MA, 02467, USA

SOURCE: Journal of the American Chemical Society (2000),  
122(25), 5905-5915  
CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Planar perylene- and naphthalene-based diimide linkers can be employed to tether the Watson-Crick and the Hoogsteen strands of a DNA triplex, thus providing conjugates capable of targeting single-stranded nucleic acids with the formation of hairpin triplexes. The planar linkers are designed to bridge the terminal base triplet of the three-stranded complex and provide base-stacking interactions with all three residues. Sixteen complexes have been prep'd., eight with each linker, half with RNA (R) targets and half with DNA (D) targets. The conjugate sequences are composed of two strands of DNA, two of 2'-O-Me RNA (M), or one of each. In comparison to similar complexes formed with a hexa(ethylene glycol) linker, the planar linkers enhance the TM values for the complexes by as much as 28 .degree.C with .DELTA.G values indicating as much as 12.3 kcal/mol of stabilization relative to the simple glycol linker. All sixteen complexes have been characterized by TM measurements and .DELTA.G detns. That .pi.-stacking interactions are present between the linkers, and the nucleobases can be inferred from the quenching of the perylene fluorescence upon complex formation, and the observation of an absorbance vs temp. transition for the naphthalene-based linker at 383 nm and for the perylene-based linker monitored at 537 nm.

CC 33-10 (Carbohydrates)

Section cross-reference(s): 22

IT 164932-87-0P 215297-15-7P 215297-16-8P 215297-17-9P

215297-18-0P 215297-19-1P 215297-20-4P

215297-21-5P 215297-22-6P 215514-42-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

IT 215297-18-0P 215297-19-1P 215297-20-4P

215297-21-5P 215297-22-6P

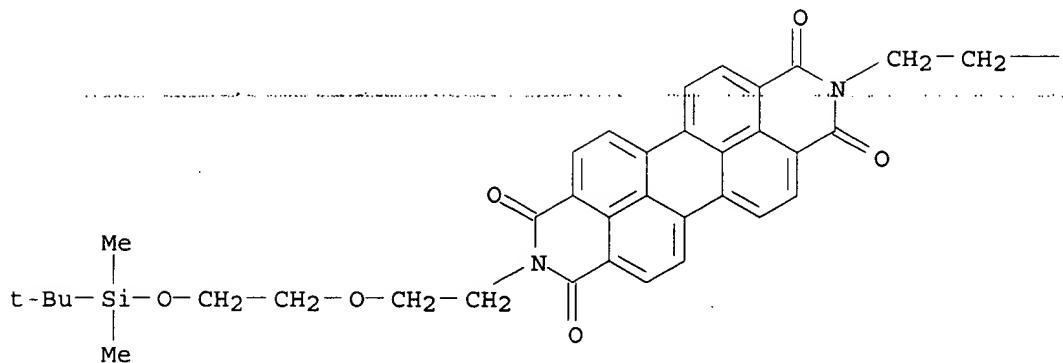
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

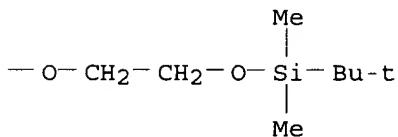
RN 215297-18-0 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]- (9CI)  
(CA INDEX NAME)

PAGE 1-A



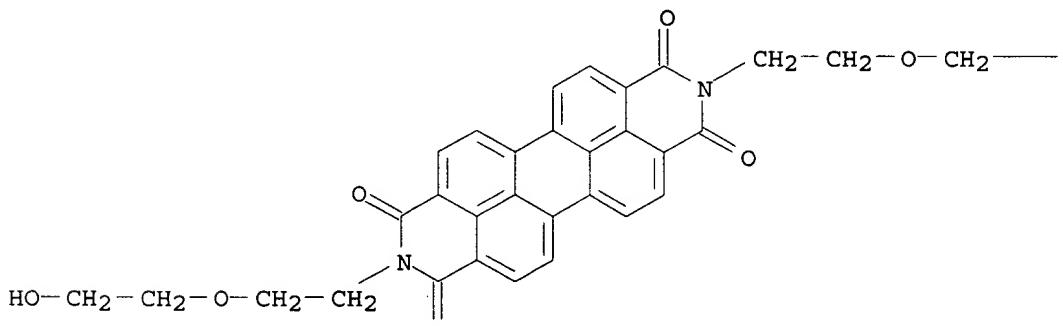
PAGE 1-B



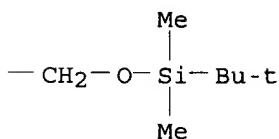
RN 215297-19-1 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxyethyl]-9-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



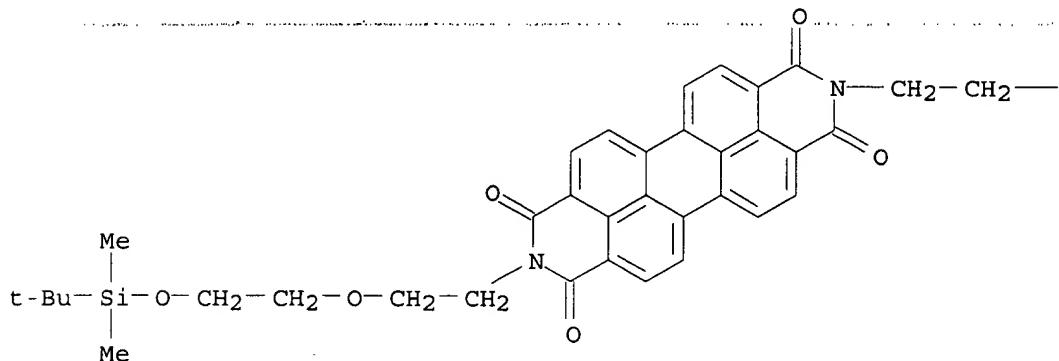
RN 215297-20-4 HCPLUS

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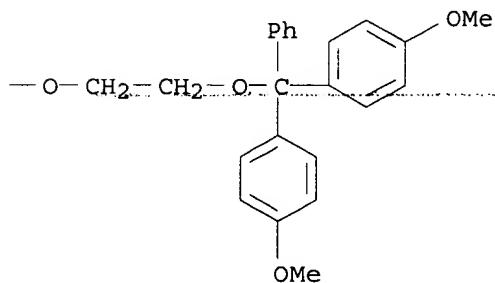
Jon Epperson 09/804, 893

2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl - (9CI) (CA INDEX NAME)

PAGE 1-A

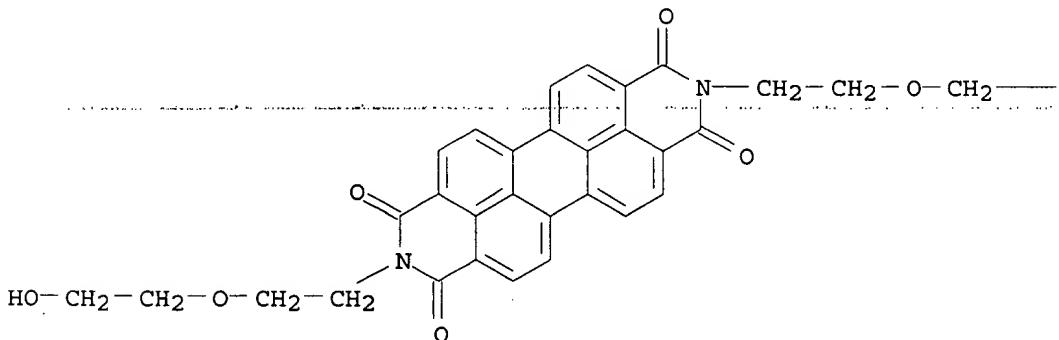


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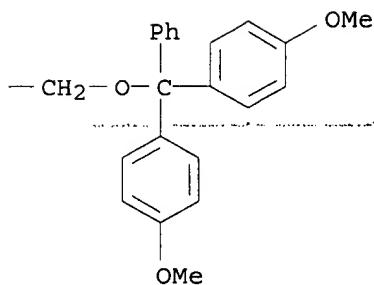


RN 215297-21-5 HCPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-[hydroxyethoxy]ethyl] - (9CI) (CA INDEX NAME)

PAGE 1-A



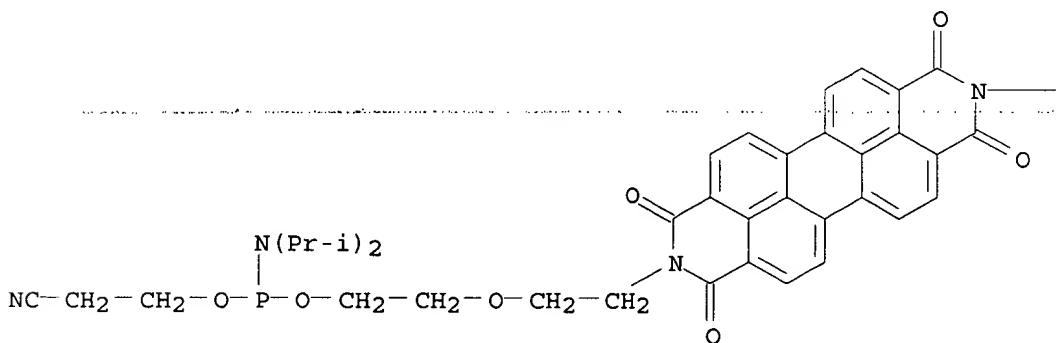
PAGE 1 - B



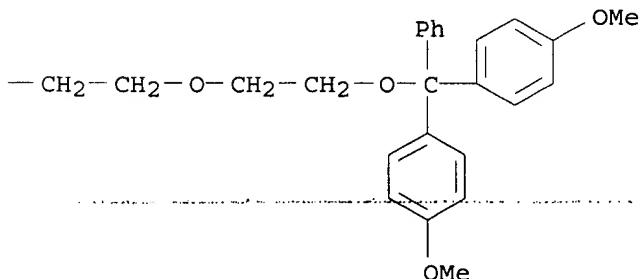
RN 215297-22-6 HCAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 2-[2-[9-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-3,8,9,10-tetrahydro-1,3,8,10-tetraoxoantra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl]ethoxy]ethyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



**REFERENCE COUNT:**

45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2003 ACS

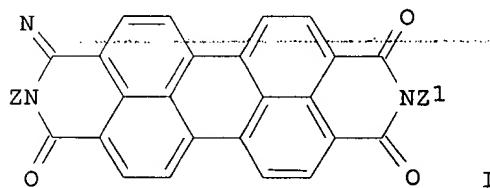
ACCESSION NUMBER: 1999:557723 HCPLUS

DOCUMENT NUMBER: 131:171551

**TITLE:** Perylene compounds, their production and their use as

INVENTOR(S): pigment dispersants  
 Weber, Joachim; Urban, Manfred; Dietz, Erwin  
 PATENT ASSIGNEE(S): Clariant G.m.b.H., Germany  
 SOURCE: Eur. Pat. Appl., 32 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC ...NUM... COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 937724	A1	19990825	EP 1999-102917	19990213
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
DE 19835757	A1	20000217	DE 1998-19835757	19980806
JP 11286489	A2	19991019	JP 1999-41984	19990219
US 6221150	B1	20010424	US 1999-255252	19990222
PRIORITY APPLN. INFO.:			DE 1998-19807422 A	19980221
			DE 1998-19835757 A	19980806
OTHER SOURCE(S):		MARPAT 131:171551		
GI				

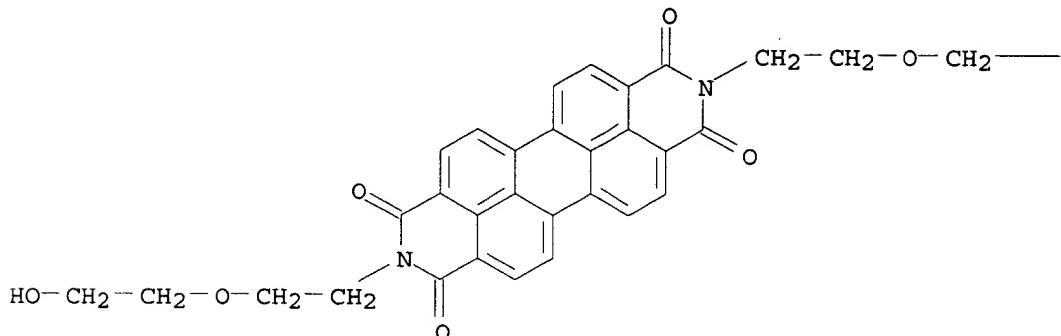


AB The perylenetetracarboxylic diimides [I; Z = (XY)<sup>q</sup>(X<sub>1</sub>Y<sub>1</sub>)<sup>r</sup>(X<sub>2</sub>NH)<sup>s</sup>H, where X, X<sub>1</sub>, X<sub>2</sub> = optionally substituted C<sub>2</sub>-6-alkylene or C<sub>5</sub>-5-cycloalkylene; Y<sub>1</sub> = imino, oxy; q = 1-6; r, s = 0-6, whereby r and s are not simultaneously 0; Z<sub>1</sub> = Z, Z<sub>2</sub>, Z<sub>3</sub>, where Z<sub>2</sub> = (XO)<sup>t</sup>(X<sub>1</sub>O)<sup>q</sup>H (t = 0-6); Z<sub>3</sub> = H, OH, amino, optionally substituted C<sub>1</sub>-6-alkyl] are obtained for use as dispersants in the prodn. and application of perylene and other pigment dispersions. I permit the use of pigment dispersions with lower viscosity and improved application properties. In an example, N-(2-hydroxyethyl)perylenetetracarboxylic monoanhydride monoimide was condensed with dipropilenetriamine to give I [Z = HO(CH<sub>2</sub>)<sub>2</sub>; Z<sub>1</sub> = (CH<sub>2</sub>)<sub>3</sub>NH(CH<sub>2</sub>)<sub>3</sub>NH], which was used in the aq. prepn. of C.I. Pigment Red 179 from perylenetetracarboxylic dianhydride and MeNH<sub>2</sub>.

IC ICM C07D471-06  
 ICS C09B005-62; C09B067-22  
 ICI C07D471-06, C07D221-00, C07D221-00  
 CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)  
 Section cross-reference(s): 42  
 IT 59442-37-4P 135934-43-9P 143992-60-3P 238755-69-6P 238755-70-9P  
 238755-71-0P 238755-72-1P 238755-73-2P 238755-74-3P  
 238755-75-4P 238755-76-5P 238755-77-6P 238755-78-7P  
 238755-79-8P 238755-80-1P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

IT (dispersant; perylenedicarboximides as dispersants for pigments)  
238755-74-3P 238755-79-8P 238755-80-1P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(dispersant; perylenedicarboximides as dispersants for pigments)  
RN 238755-74-3 HCAPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis{2-[2-(2-hydroxyethoxy)ethyl]}- (9CI) (CA INDEX NAME)

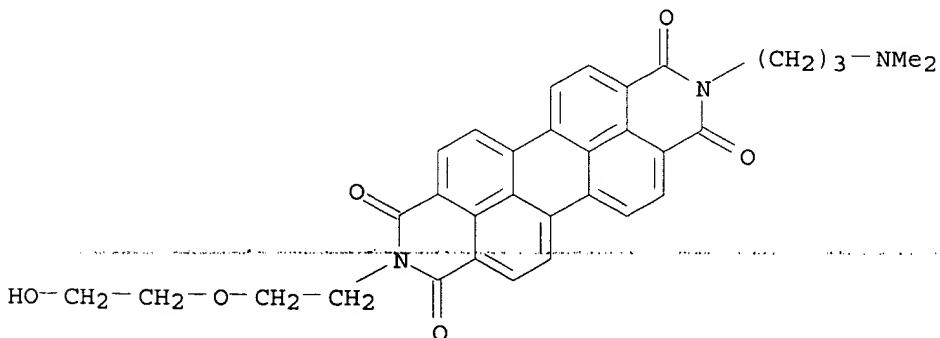
PAGE 1-A



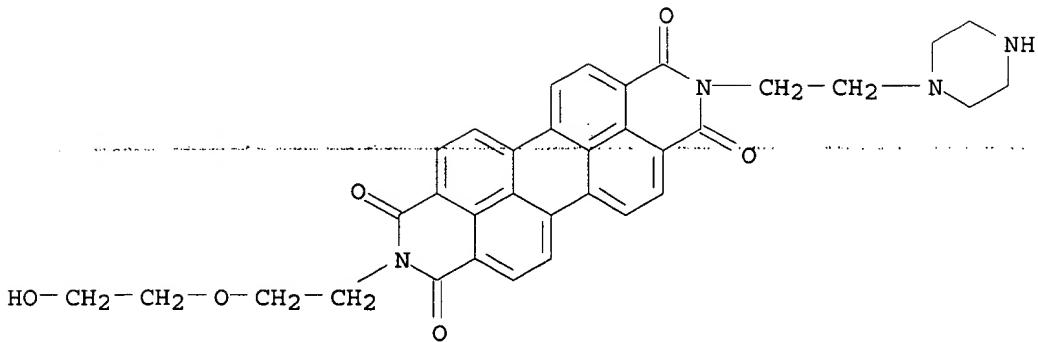
PAGE 1-B

— CH<sub>2</sub> — OH

RN 238755-79-8 HCAPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[3-(dimethylamino)propyl]-9-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX  
NAME)



RN 238755-80-1 HCAPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-(2-hydroxyethoxy)ethyl]-9-[2-(1-piperazinyl)ethyl]- (9CI) (CA INDEX  
NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1998:716470 HCAPLUS

DOCUMENT NUMBER: 130:58369

TITLE: Liquid Crystal Perylene Diimide Films Characterized by Electrochemical, Spectroelectrochemical, and Conductivity versus Potential Measurements

AUTHOR(S): Gregg, Brian A.; Cormier, Russell A.

CORPORATE SOURCE: National Renewable Energy Laboratory, Golden, CO, 80401, USA

SOURCE: Journal of Physical Chemistry B (1998), 102(49), 9952-9957

CODEN: JPCBFK; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Electrochem. techniques were used to characterize thin polycryst. films of a liq. crystal perylene diimide. Cyclic voltammograms show evidence for strong attractive interactions between the perylene diimide mols. and suggest that the film undergoes two structural rearrangements to accommodate redn. to the anionic and dianionic states.

Spectroelectrochem. measurements support this interpretation. The redox cond. of the film as a function of electrochem. potential was measured using interdigitated array electrodes. The cond. reaches the semiconducting level before the occurrence of the 1st noticeable redn. wave. The max. cond., 4.4 times. 10<sup>-2</sup> S/cm, occurs when the film is reduced by 1 equiv of electrons, in contrast to the expectation that this state should be a Mott insulator.

CC 72-2 (Electrochemistry)

Section cross-reference(s): 73, 75, 76

IT 217496-52-1

RL: FMU (Formation, unclassified); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)  
(electrochem. reductive formation and redn.: liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

IT 217496-53-2

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)  
(electrochem. reductive formation: liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

IT 199606-43-4

Jon Epperson 09/804,893

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

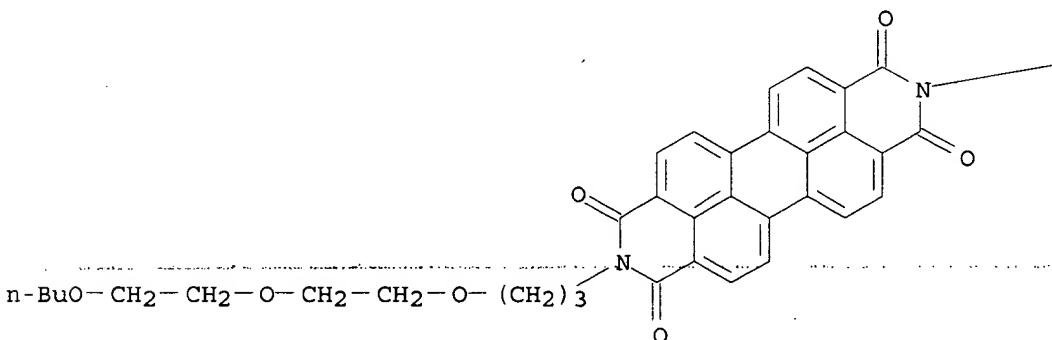
IT 217496-52-1

RL: FMU (Formation, unclassified); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)  
(electrochem. reductive formation and redn.: liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

RN 217496-52-1 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]-, radical ion(1-) (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— (CH<sub>2</sub>)<sub>3</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—OBu-n

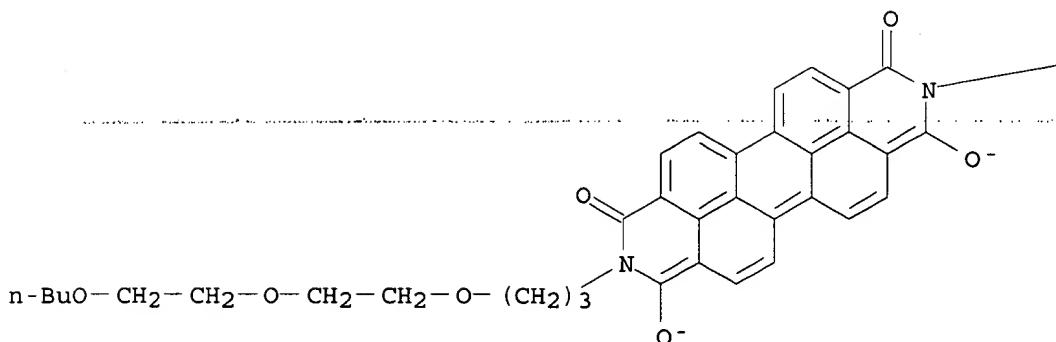
IT 217496-53-2

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)  
(electrochem. reductive formation: liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

RN 217496-53-2 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,10-dione,  
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]-2,9-dihydro-3,8-dihydroxy-, radical ion(2-) (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— (CH<sub>2</sub>)<sub>3</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>-OBu-n

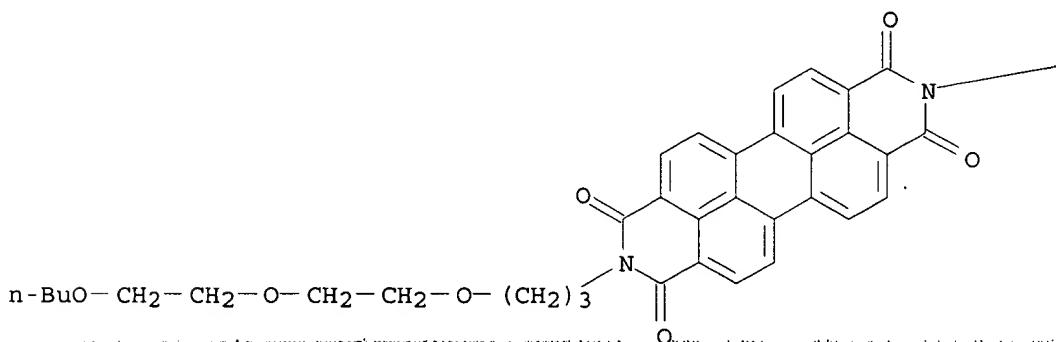
IT 199606-43-4

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
.....(liq....crystal...perylene diimide films characterized by electrochem...  
spectroelectrochem., and cond. vs. potential measurements)

RN 199606-43-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— (CH<sub>2</sub>)<sub>3</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>-OBu-n

REFERENCE COUNT:

44

THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

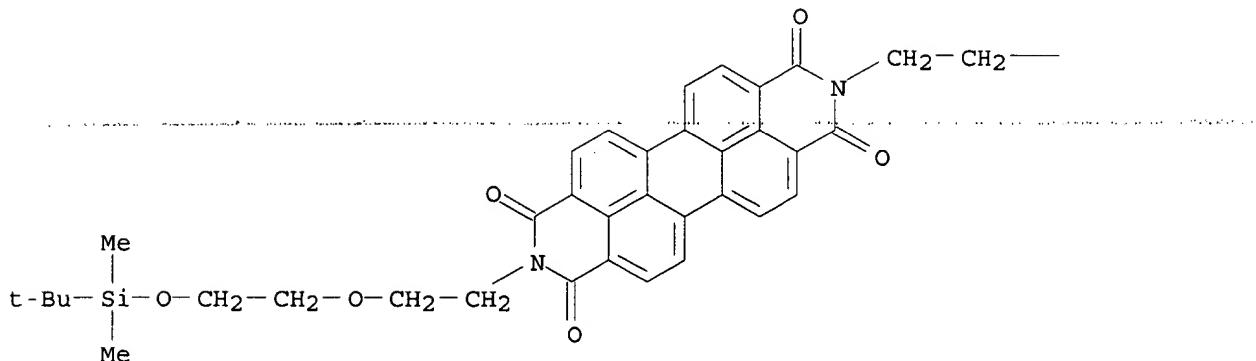
L13 ANSWER 11 OF 15 HCPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1998:642702 HCPLUS  
 DOCUMENT NUMBER: 130:4018  
 TITLE: Perylene- and Naphthalene-Based Linkers for Duplex and Triplex Stabilization  
 AUTHOR(S): Bevers, Susan; O'Dea, Timothy P.; McLaughlin, Larry W.  
 CORPORATE SOURCE: Department of Chemistry Merkert Chemistry Center, Boston College, Chestnut Hill, MA, 02167, USA  
 SOURCE: Journal of the American Chemical Society (1998), 120(42), 11004-11005  
 CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Perylene and naphthalene were chosen for development into planar pi-stacking linkers in DNA duplex or triplex preps. Linkers were prep'd. by reaction of the corresponding tetra-carboxylic acid dianhydride with 2-aminoethoxyethanol or its tBDSM deriv. Thermal stabilities of DNA duplex (5'-TCTTTCTT-linker-AAGAAAAGA) or triplex (5'-TCTTTCTT-linker-TTCTTTCT/9-mer or 19-mer) systems. Both the perylene and naphthalene-based duplex linkers showed increased TM values, compared to a duplex tethered by hexa(ethylene glycol), but the perylene linker showed only a small increase over naphthalene, perhaps because it is significantly larger than necessary to bridge the phosphate residues at the terminus of a B-form helix, while the naphthalene-based linker can be more optimally positioned at the end of a duplex. In triplex formation, the most significant TM enhancements were those that occurred with the 19-mer complex, where the perylene-based linker showed a 19 degree increase at pH 5.5; for both linkers, this is perhaps due to their potential to provide stacking interactions with all three residues, and possibly with the first base residue of the target strand that extends beyond the triplex region.

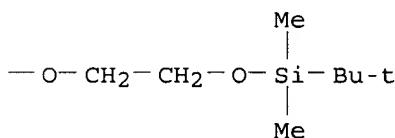
CC 33-10 (Carbohydrates)  
 IT 164932-87-0P 215297-15-7P 215297-16-8P 215297-17-9P  
 215297-18-0P 215297-19-1P 215297-20-4P  
 215297-21-5P 215297-22-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (perylene- and naphthalene-based linkers for duplex and triplex stabilization)  
 IT 215297-18-0P 215297-19-1P 215297-20-4P  
 215297-21-5P 215297-22-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (perylene- and naphthalene-based linkers for duplex and triplex stabilization)  
 RN 215297-18-0 HCPLUS  
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
 2,9-bis{2-[2-{[(1,1-dimethylethyl)dimethylsilyl]oxy}ethoxy]ethyl}- (9CI)  
 (CA INDEX NAME)

Jon Epperson 09/804, 893

PAGE 1-A



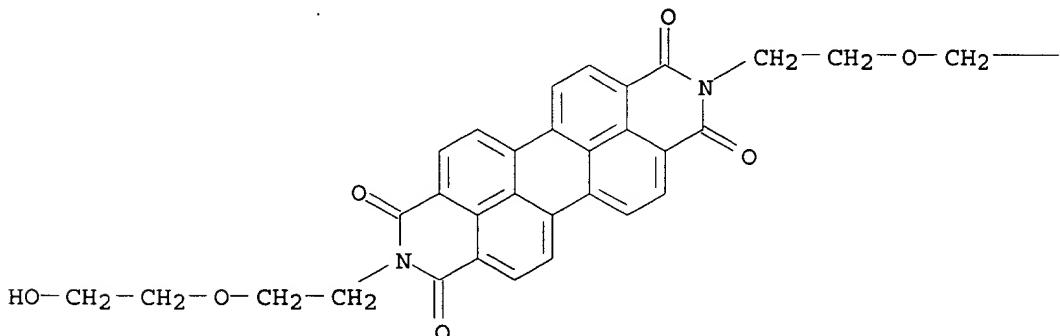
PAGE 1-B



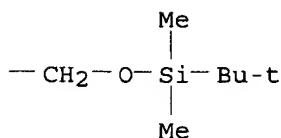
RN 215297-19-1 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxyethyl]-9-[2-(2-hydroxyethoxyethyl)-(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



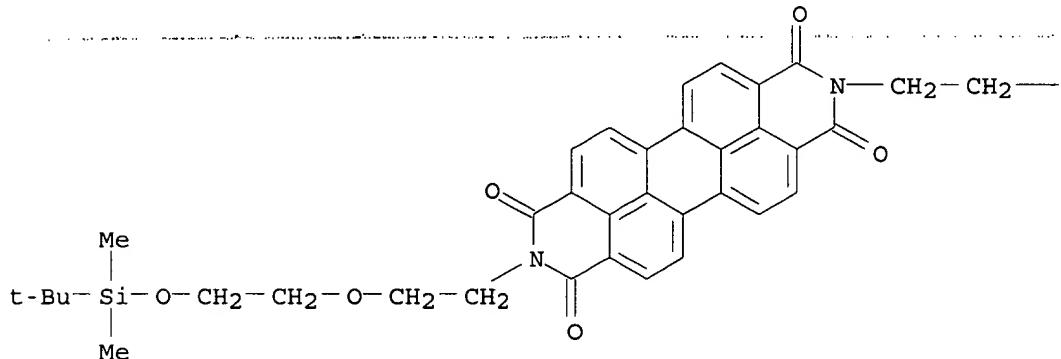
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CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,

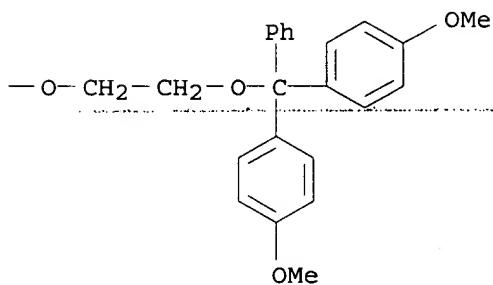
Jon Epperson 09/804, 893

2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxyethyl]-9-[2-[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxyethyl] - (9CI) (CA INDEX NAME)

PAGE 1-A

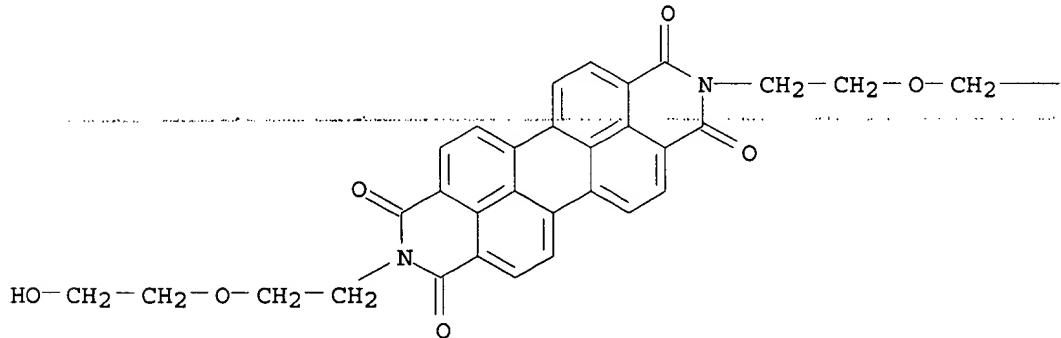


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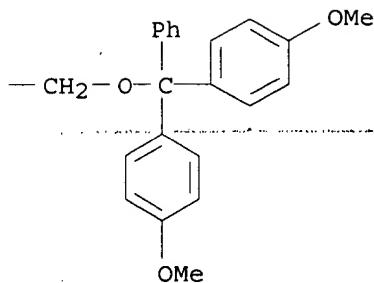


RN 215297-21-5 HCPLUS  
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2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxyethyl]-9-[2-(2-hydroxyethoxyethyl] - (9CI) (CA INDEX NAME)

PAGE 1-A



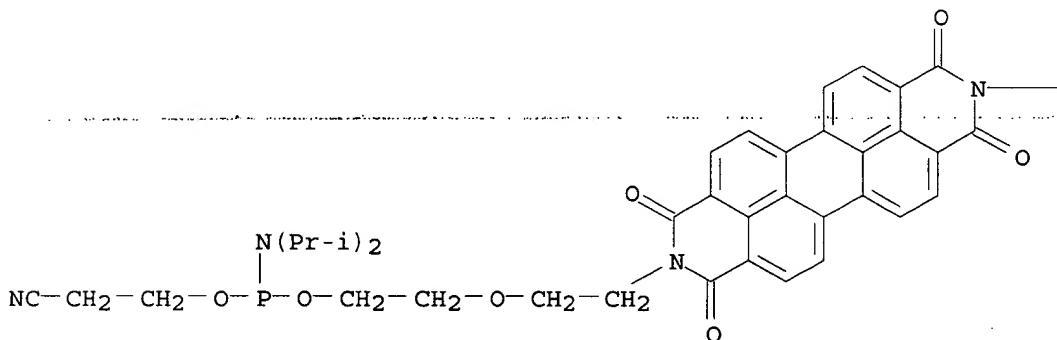
PAGE 1-B



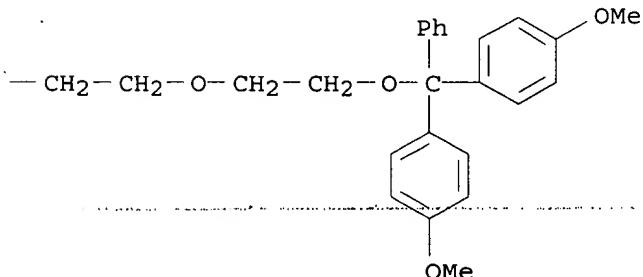
RN 215297-22-6 HCAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 2-[2-[9-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-3,8,9,10-tetrahydro-1,3,8,10-tetraoxoantra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl]ethoxy]ethyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



REFERENCE COUNT:

16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:269529 HCAPLUS

DOCUMENT NUMBER: 128:302412

TITLE: Synthesis and Characterization of Liquid Crystalline

AUTHOR(S): Perylene Diimides  
 Cormier, Russell A.; Gregg, Brian A.  
 CORPORATE SOURCE: National Renewable Energy Laboratory, Golden, CO,  
 80401, USA  
 SOURCE: Chemistry of Materials (1998), 10(5), 1309-1319  
 CODEN: CMATEX; ISSN: 0897-4756  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Several polyoxyethylene-substituted perylene-3,4,9,10-tetracarboxydiimides were synthesized and characterized. Relative to other known perylene diimide derivs., all of the present compds. have much lower m.ps. and much greater solv. in common solvents. Most of these compds. possess liq. cryst. properties over a wide range of temps., some of them even at room temp. and below. Some of the photophys. and self-organizing characteristics of these compds. are demonstrated, particularly with regard to the spontaneous formation of a highly cryst. black phase. Generalized correlations about the phys. properties and the chem. structures of these new liq. cryst. compds. are discussed. Their unusual phys. and photophys. properties have important implications for their use in a variety of electroactive and photovoltaic applications.

CC 75-11 (Crystallography and Liquid Crystals)

Section cross-reference(s): 28

IT 67075-37-0P 106822-31-5P 199606-40-1P 199606-41-2P

199606-42-3P 199606-43-4P 199606-44-5P

199606-45-6P 199606-46-7P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (prepn. and liq. crystal properties and spectral characterization of)

IT 199606-40-1P 199606-41-2P 199606-42-3P

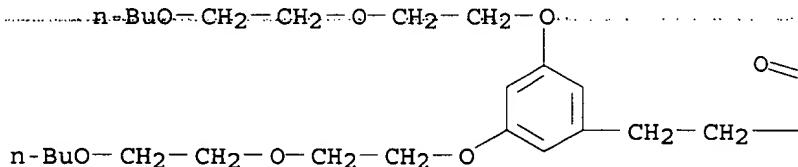
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RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (prepn. and liq. crystal properties and spectral characterization of)

RN 199606-40-1 HCPLUS

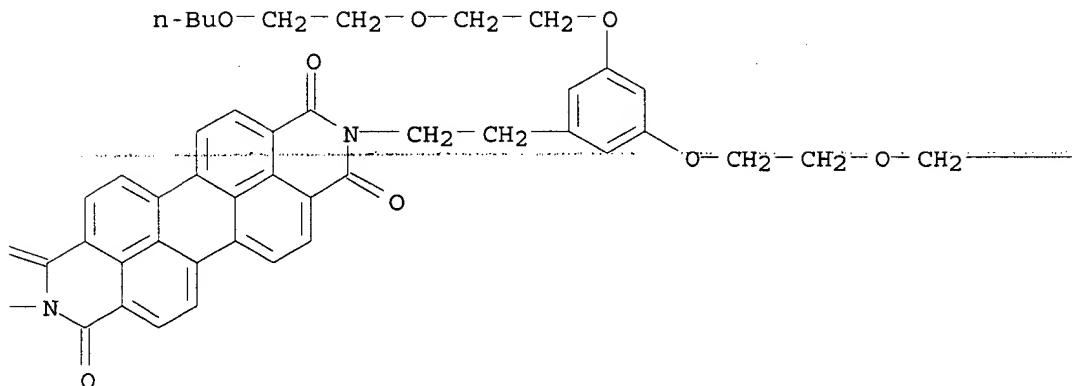
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
 2,9-bis[2-[3,5-bis[2-(2-butoxyethoxy)ethoxy]phenyl]ethyl]- (9CI) (CA  
 INDEX NAME)

PAGE 1-A



Jon Epperson 09/804, 893

PAGE 1-B

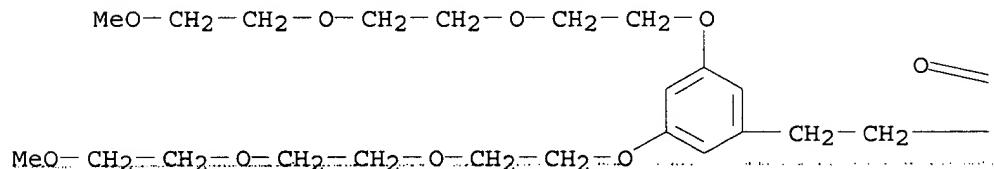


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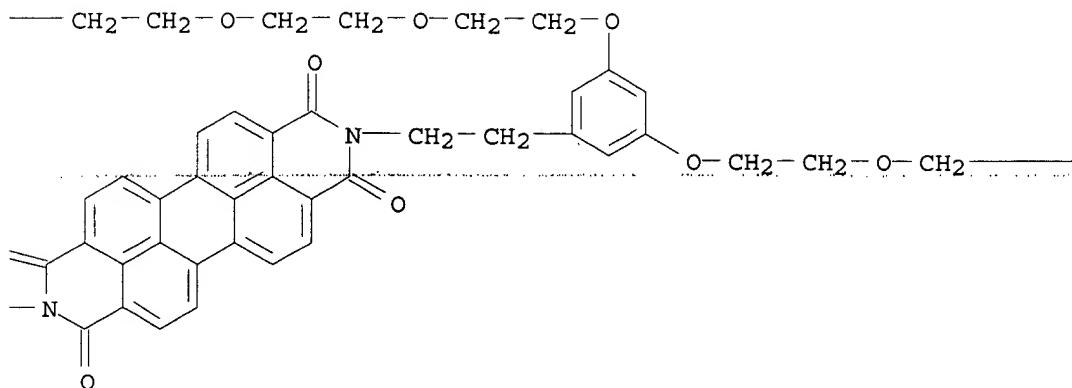
RN 199606-41-2 HCPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[2-[3,5-bis[2-[2-(2-methoxyethoxy)ethoxy]ethoxy]phenyl]ethyl]-  
(9CI) (CA INDEX NAME)

PAGE 1-A

MeO—



PAGE 1-B



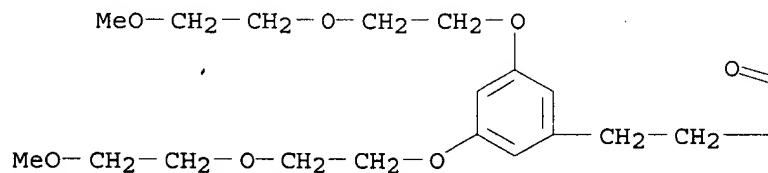
PAGE 1-C



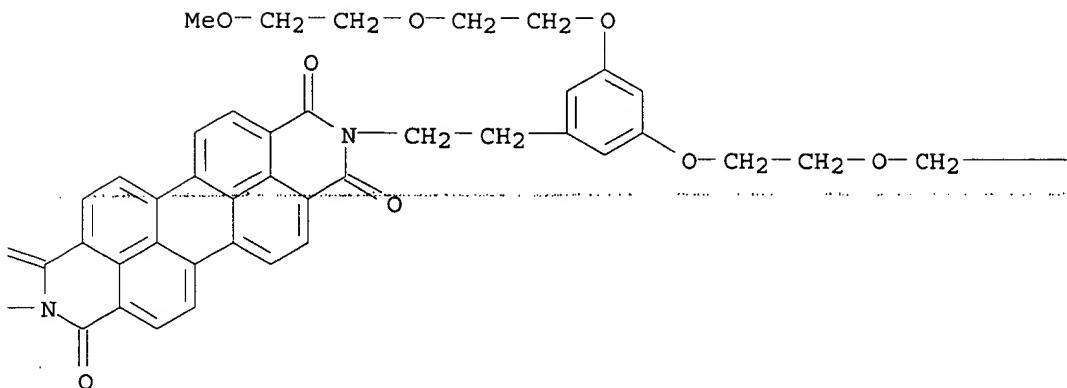
RN 199606-42-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[2-[3,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]ethyl]- (9CI) (CA  
INDEX NAME)

PAGE 1-A



PAGE 1-B



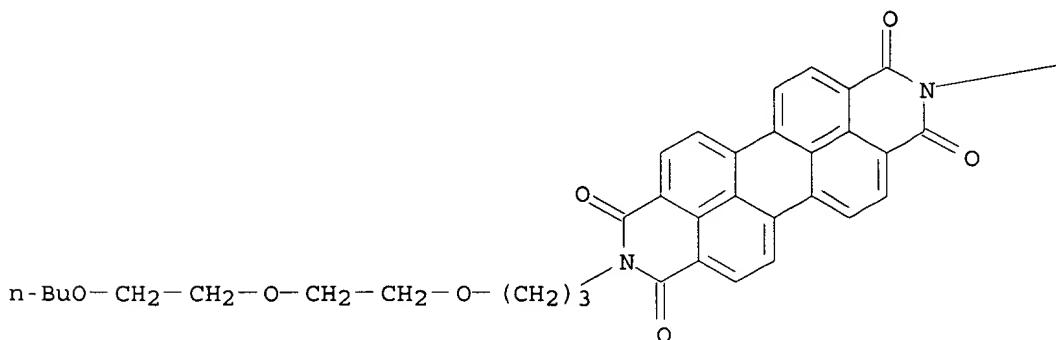
PAGE 1-C

— CH<sub>2</sub>—OMe

RN 199606-43-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

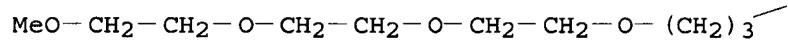
— (CH<sub>2</sub>)<sub>3</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—OBu-n

RN 199606-44-5 HCAPLUS

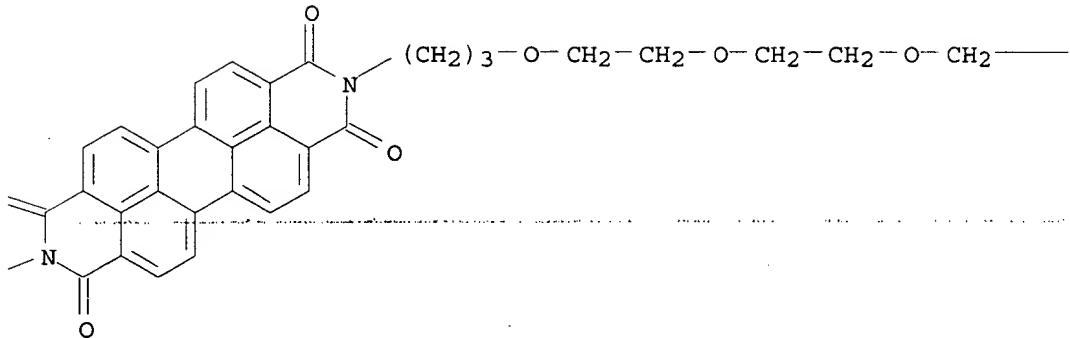
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis(4,7,10,13-tetraoxatetradec-1-yl)- (9CI) (CA INDEX NAME)

Jon Epperson 09/804, 893

PAGE 1-A



PAGE 1-B



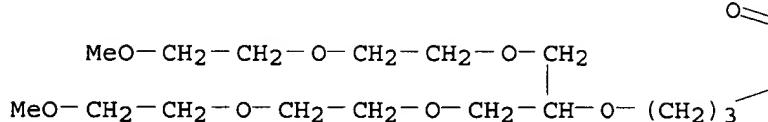
PAGE 1-C

— CH<sub>2</sub> — OMe

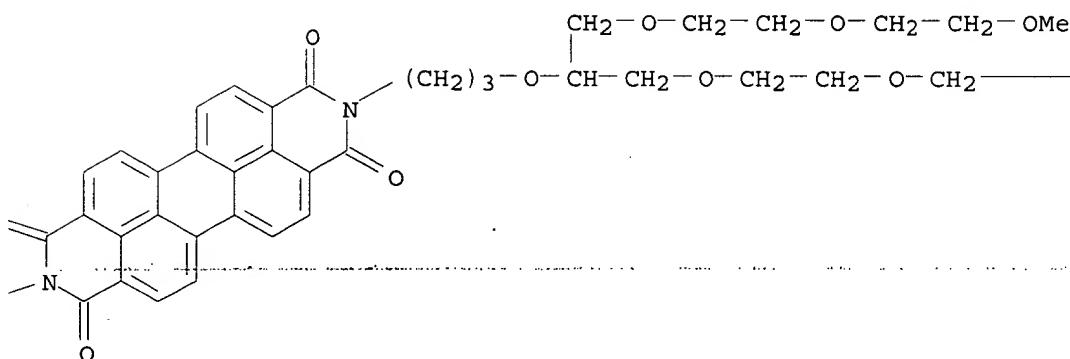
RN 199606-46-7 HCPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[4-[[2-[2-(2-methoxyethoxy)ethoxy]methyl]-4,7,10,13-  
tetraoxatetradec-1-yl]- (9CI) (CA INDEX NAME)

Jon Epperson 09/804, 893

PAGE 1 - A



PAGE 1-B



PAGE 1-C

$$-\text{CH}_2-\text{OMe}$$

L13 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1998:16270 HCAPLUS  
DOCUMENT NUMBER: 128:41835  
TITLE: Self-Organization in Thin Films of Liquid Crystalline  
Perylene Diimides  
AUTHOR(S): Cormier, Russell A.; Gregg, Brian A.  
CORPORATE SOURCE: National Renewable Energy Laboratory; Golden, CO,  
80401-3393, USA  
SOURCE: Journal of Physical Chemistry B (1997), 101(51),  
11004-11006  
CODEN: JPCBFK; ISSN: 1089-5647  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A family of liq. cryst. org. semiconductors based on perylene-3,4,9,10-tetracarboxydiimide is introduced. The thermal transitions,

self-organizing behavior, and change in photophys. properties upon self-organization of one member of the family are described. Red, polycryst. thin films of spin-coated N,N'-bis[3-[1,3-bis[2-(2-methoxyethoxy)ethoxy]-2-propoxy]propyl]perylene-3,4,9,10-tetracarboxyldiimide spontaneously form a highly cryst. black phase after .apprx.24 h. The quantum yield for fluorescence from the black phase is enhanced 7-fold, and the width (fwhm) of the emission band is decreased by more than a factor of 2, with respect to the red phase. The self-organization process appears to decrease spontaneously both the energetic disorder and the d... of exciton quenching sites in the film.

CC 75-11 (Crystallography and Liquid Crystals)  
Section cross-reference(s): 66

IT 199606-40-1P 199606-41-2P 199606-42-3P  
199606-43-4P 199606-44-5P 199606-45-6P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and liq. crystal properties of)

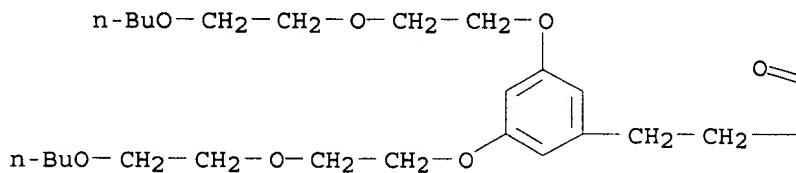
IT 199606-46-7P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN  
(Synthetic preparation); PREP (Preparation); PROC (Process)  
(prepn., liq. crystal properties, and fluorescence of black cryst.  
phase of)

IT 199606-40-1P 199606-41-2P 199606-42-3P  
199606-43-4P 199606-44-5P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and liq. crystal properties of)

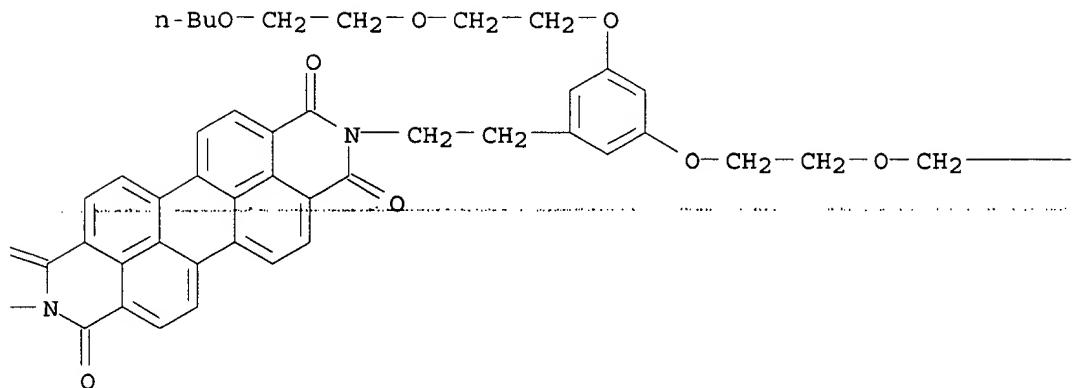
RN 199606-40-1 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[2-[3,5-bis[2-(2-butoxyethoxy)ethoxy]phenyl]ethyl]- (9CI) (CA  
INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

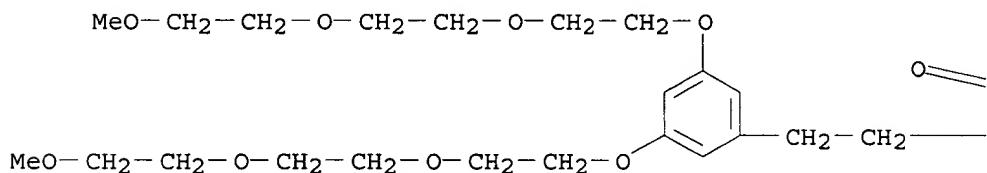
—CH<sub>2</sub>—OBu-n

RN 199606-41-2 HCAPLUS

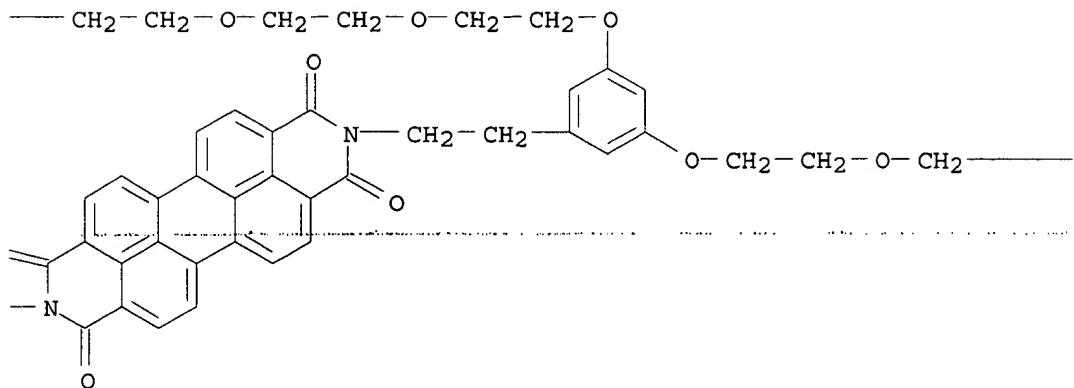
CN Anthra{2,1,9-def}6,5,10-d-e'f'}diisoquinoline-1,3;8,10(2H,9H)-tetrone,  
2,9-bis[2-[3,5-bis[2-[2-(2-methoxyethoxy)ethoxy]phenoxy]ethyl]-  
(9CI) (CA INDEX NAME)

PAGE 1-A

MeO—



PAGE 1-B



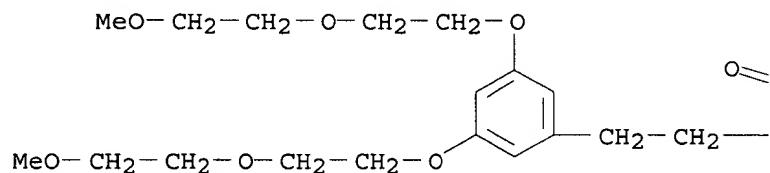
PAGE 1-C



RN 199606-42-3 HCPLUS

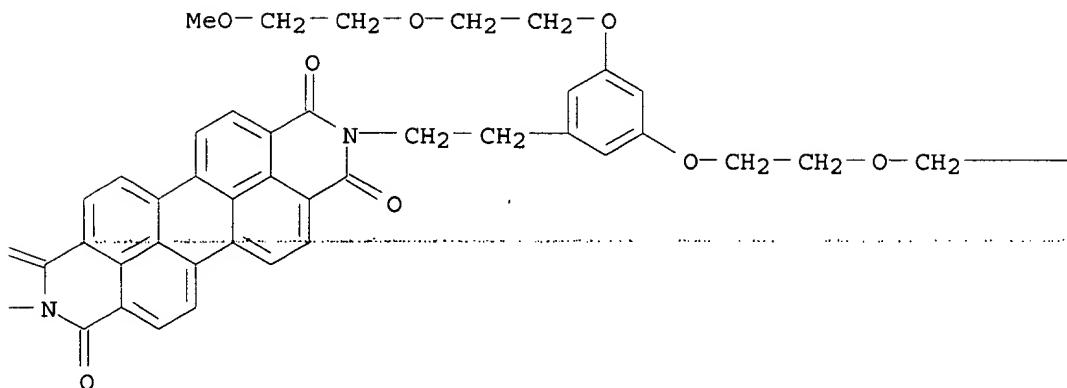
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis{2-[3,5-bis(2-(2-methoxyethoxy)ethoxy]phenyl]ethyl}-(9CI)  
INDEX NAME)

PAGE 1-A



Jon Epperson 09/804,893

PAGE 1-B

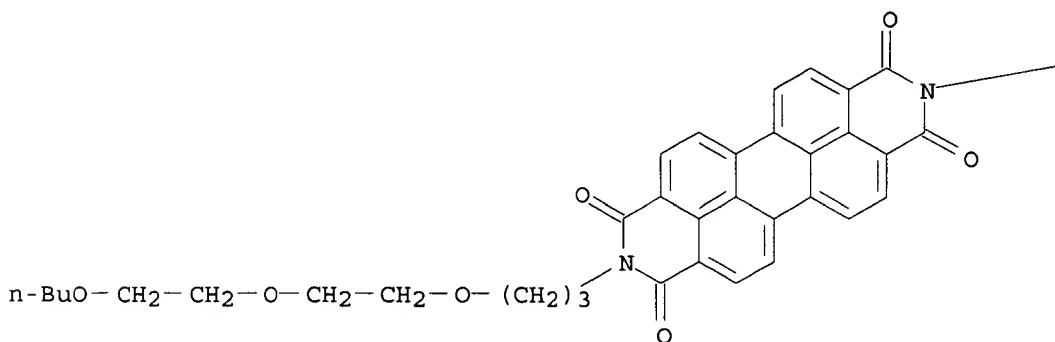


PAGE 1-C

$$-\text{CH}_2\text{--OMe}$$

RN 199606-43-4 HCAPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI). (CA INDEX NAME)

PAGE 1-A

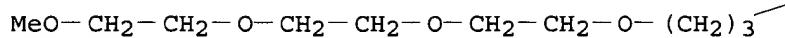


PAGE 1-B

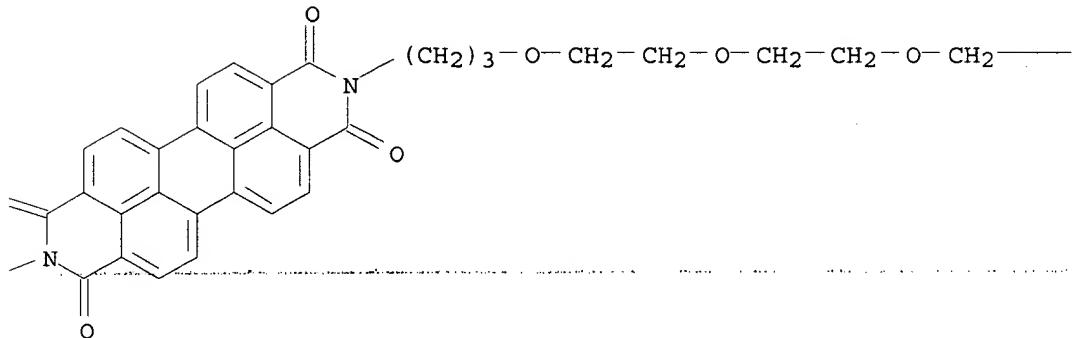
$$-\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OBu}-n$$

RN 199606-44-5 HCAPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis(4,7,10,13-tetraoxatetradec-1-yl) - (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

— CH<sub>2</sub>— OMe

IT 199606-46-7P

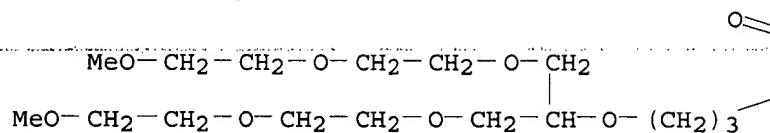
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(prepn., liq. crystal properties, and fluorescence of black cryst.  
phase of)

RN 199606-46-7 HCAPLUS

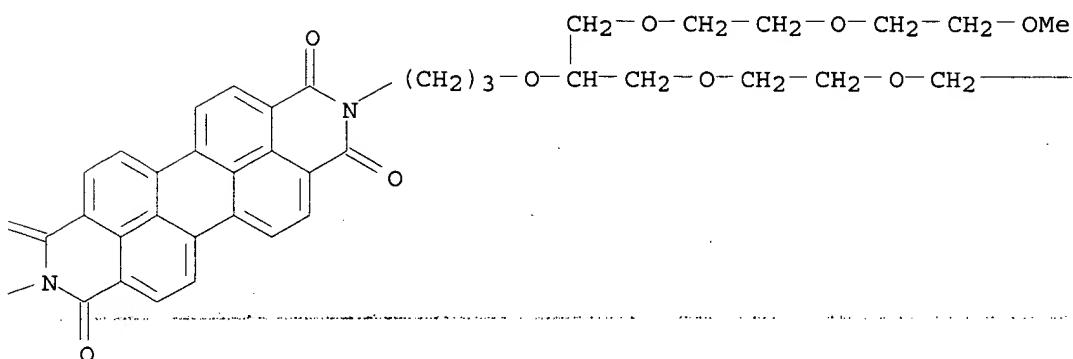
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[4-[[2-[2-(2-methoxyethoxy)ethoxy]methyl]-4,7,10,13-  
tetraoxatetradec-1-yl]- (9CI) (CA INDEX NAME)

Jon Epperson 09/804, 893

PAGE 1-A



PAGE 1-B



PAGE 1-C

— CH<sub>2</sub>—OMe

L13 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1986:99208 HCAPLUS  
DOCUMENT NUMBER: 104:99208  
TITLE: Dye laser  
INVENTOR(S): Graser, Fritz; Iden, Ruediger; Seybold, Guenther;  
Stange, Andreas; Wagenblast, Gerhard  
PATENT ASSIGNEE(S): BASF A.-G., Fed. Rep. Ger.  
SOURCE: Ger. Offen., 46 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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Jon Epperson 09/804, 893

DE 3413418 A1 19851017 DE 1984-3413418 19840410  
PRIORITY APPLN. INFO.: DE 1984-3413418 19840410  
AB Substituted violanthrene-5,10-dione, isoviolanthrene-9,18-dione, and  
perylene dyes have high fluorescence quantum yields and high light and  
heat resistances which make them extremely suitable for use in dye lasers.  
Thus, a soln. of perylene-3,4,9,10-tetracarboxylic acid  
bis(2',6'-dimethylphenylimide) in DMF (1 .times. 10<sup>-4</sup> mol/L) was excited  
at 530 nm with a Nd YAG laser. The dye emitted at 580 nm with  
fluorescence quantum yield of 98%.

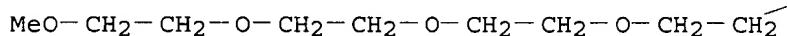
IC ICM H01S003-20  
ICS C09B003-14; C09B003-78; C09B005-00  
CC 7.3-10 (Optical, Electron, and Mass Spectroscopy and Other Related  
Properties)  
Section cross-reference(s): 41

IT 2744-50-5 23277-28-3 39951-99-0 59642-63-6 59736-90-2 76372-76-4  
78151-58-3 79306-86-8 85652-35-3 85652-46-6 85652-53-5  
85652-55-7 90824-87-6 90826-82-7 95609-41-9 95609-44-2  
95609-45-3 95689-40-0 95689-41-1 95689-42-2 95689-43-3  
95689-45-5 95689-46-6 95689-47-7 95689-51-3 95689-53-5  
95689-54-6 95689-55-7 95689-57-9 95689-58-0 95689-59-1  
**95689-61-5** 95689-62-6 95689-64-8 95689-65-9 95689-68-2  
95689-72-8 95689-92-2 95690-01-0 97087-28-0 100441-37-0  
100443-90-1 100443-94-5 100443-95-6 100443-96-7  
RL: DEV (Device component use); USES (Uses)  
(for dye lasers)

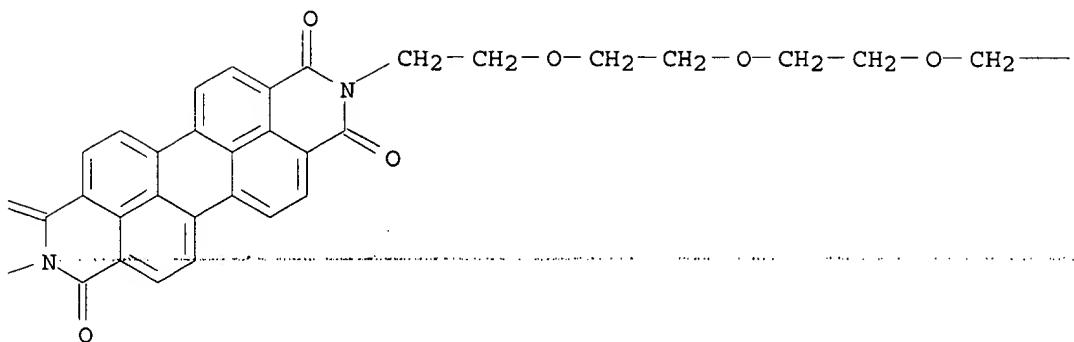
IT **95689-61-5**  
RL: DEV (Device component use); USES (Uses)  
(for dye lasers)

RN 95689-61-5 HCAPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis(3,6,9,12-tetraoxatridec-1-yl) - (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

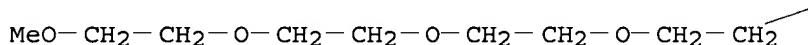
 $\text{---CH}_2\text{---OMe}$ 

L13 ANSWER 15 OF 15 HCPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1985:150903 HCPLUS  
 DOCUMENT NUMBER: 102:150903  
 TITLE: Fluorescent dyes for solar collectors  
 AUTHOR(S): Iden, Ruediger; Seybold, Guenther; Stange, Andreas;  
 Eilingsfeld, Heinz  
 CORPORATE SOURCE: ZD/Farbenlab., BASF A.-G., Ludwigshafen, Fed. Rep.  
 Ger.  
 SOURCE: Forschungsber. - Bundesminist. Forsch. Technol.,  
 Technol. Forsch. Entwickl. (1984), BMFT-FB-T 84-164,  
 115 pp.  
 CODEN: BFTEAJ; ISSN: 0340-7608  
 DOCUMENT TYPE: Report  
 LANGUAGE: German  
 AB A large no. of org. dyes was synthesized and screened for potential use in  
 solar collectors. Most suitable were perylene and perylene imide dyes, B  
 complexes of naphtholactam dyes, and polycarbocyclic dyes. These compds.  
 covered the whole color range from yellow to blue. Chromatog. methods  
 were developed for purifn. of fluorescent dyes.  
 CC 41-1 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic  
 Sensitizers)  
 Section cross-reference(s): 52  
 IT 5521-31-3 16612-39-8 22047-48-9 25834-02-0 55303-01-0 59642-63-6  
 69207-58-5 76372-76-4 78151-58-3 79306-86-8 82953-57-9  
 84164-63-6 85652-53-5 90826-77-0 90826-79-2 90826-82-7  
 95609-43-1 95609-45-3 95630-52-7 95689-40-0 95689-42-2  
 95689-44-4 95689-45-5 95689-48-8 95689-54-6 95689-57-9  
 95689-58-0 95689-59-1 95689-61-5 95689-62-6 95689-63-7  
 95689-64-8 95689-65-9 95689-66-0 95689-68-2 95689-83-1  
 95689-84-2 95689-85-3 95689-86-4 95689-87-5 95689-88-6  
 95689-89-7 95689-92-2 95690-05-4 95710-53-5 95710-54-6  
 95710-57-9  
 RL: USES (Uses)

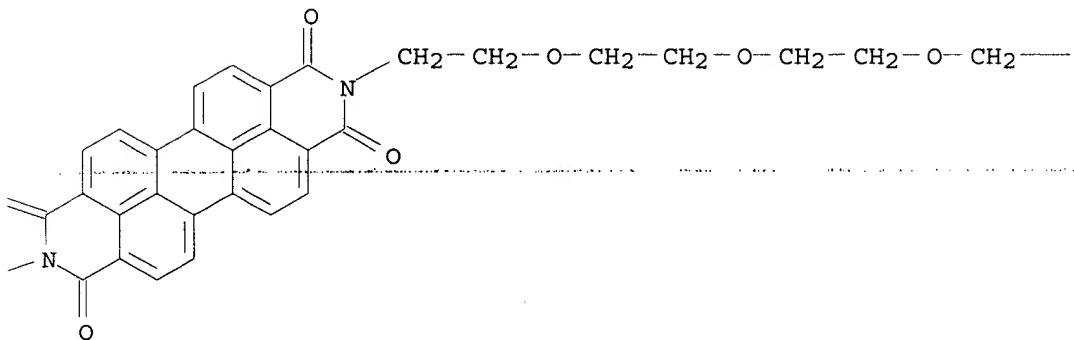
Jon Epperson 09/804, 893

(absorption-emission max. and solv. of)  
IT 95689-61-5  
RL: USES (Uses)  
(absorption-emission max. and solv. of)  
RN 95689-61-5 HCAPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis(3,6,9,12-tetraoxatridec-1-yl) - (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

-- CH<sub>2</sub>--OMe

L16 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1998:493638 HCAPLUS  
DOCUMENT NUMBER: 129:137384  
TITLE: Methods for improving the adhesion and/or colorfastness of ink jet inks with respect to substrates applied thereto, and compositions useful

therefor  
INVENTOR(S) : Woolf, Jerome A.  
PATENT ASSIGNEE(S) : Formulabs, USA; Woolf, Jerome A.  
SOURCE: PCT Int. Appl., 46 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9830642	A1	19980716	WO 1997-US24099	19971231
W: AU, CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5897694	A	19990427	US 1997-779528	19970106
AU 9856231	A1	19980803	AU 1998-56231	19971231
EP 951516	A1	19991027	EP 1997-952674	19971231
R: BE, DE, ES, FR, GB, IT, NL, SE				
JP 2001508482	T2	20010626	JP 1998-530943	19971231
PRIORITY APPLN. INFO.:			US 1997-779528	A2 19970106
			WO 1997-US24099	W 19971231

AB In accordance with the present invention, it has been discovered that the adhesion properties and/or colorfastness of ink jet formulations when applied to a variety of substrates can be improved by adding a specific class of additives thereto. The additives are typically chelates of transition metals contg. .alpha.-hydroxy carboxylic acid ligands, e.g. zirconium lactate. Invention formulations enable application of water-resistant (e.g., washable), colorfast images to a wide variety of substrates employing ink jet methodol. For example, an ink compn. contg. distd. water 87.1, 2-pyrrolidone 5, Giv-Gard DXN 0.1, Cobratec 99 0.1, AMP-95 1, Milliken polymeric blue colorant 10061-52 6.5, and zirconium lactate 0.2 wt.% was prep'd.

IC ICM C09D011-02

CC 42-12 (Coatings, Inks, and Related Products)

IT 56-81-5, 1,2,3-Propanetriol, uses 67-63-0, Isopropyl alcohol, uses 78-59-1, Isophorone 97-64-3, Ethyl lactate 107-21-1, 1,2-Ethanediol, uses 107-88-0, 1,3-Butylene glycol 109-86-4, Ethylene glycol monomethyl ether 111-29-5, 1,5-Pentanediol 111-46-6, uses 111-48-8, Thiodiglycol 112-27-6 112-59-4 123-42-2, Diacetone alcohol 138-22-7, Butyl lactate 504-63-2, 1,3-Propanediol 547-64-8, Methyl lactate 616-45-5, 2-Pyrrolidone 617-51-6, Isopropyl lactate 872-50-4, uses 1320-67-8, Propylene glycol monomethyl ether 1330-20-7, Xylene, uses 25322-68-3 68894-53-1, Tergitol RL: NUU (Other use, unclassified); USES (Uses)  
(improvement of adhesion and/or colorfastness of ink jet inks with respect to substrates by adding .alpha.-hydroxy carboxylic acid-metal chelates)

IT 95-14-7, Cobratec 99 124-68-5, AMP-95 147-14-8, Phthalocyanine blue 475-71-8, Flavanthrone yellow 641-13-4, Anthanthrone 828-00-2, Giv-Gard DXN 980-26-7, Quinacridone magenta 1303-86-2, Boric oxide, uses 1304-28-5, Barium oxide, uses 1304-76-3, Bismuth oxide, uses 1305-78-8, Calcium oxide, uses 1306-19-0, Cadmium oxide, uses 1306-23-6, Cadmium yellow, uses 1309-48-4, Magnesium oxide, uses 1313-59-3, Sodium oxide, uses 1313-99-1, Nickel oxide, uses 1314-11-0, Strontium oxide, uses 1314-13-2, Zinc white, uses 1314-23-4, Zirconium oxide, uses 1314-56-3, Phosphorus oxide, uses 1314-62-1, Vanadium oxide, uses 1317-80-2, Rutile 1328-53-6, Phthalocyanine green 1332-29-2, Tin oxide 1335-25-7, Lead oxide 1344-28-1, Aluminum oxide, uses 1344-37-2, Chrome yellow 1344-70-3, Copper oxide 1344-98-5,

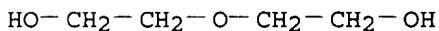
Terre verte 1345-05-7, Lithopone 1345-16-0, Cobalt blue 2425-85-6, Toluidine red 2512-29-0, Arylide yellow G 3905-19-9 4424-06-0, Perinone orange 6424-77-7, Perylene red 6486-23-3, Arylide yellow 10G 7631-86-9, Silicon oxide, uses 7727-43-7, Blanc fixe 8011-87-8, Cobalt green 8012-00-8, Naples yellow 8046-59-1, Manganese blue 10101-66-3, Manganese violet 10294-40-3, Barium chromate 11104-61-3, Cobalt oxide 11118-57-3, Chromium oxide 11129-18-3, Cerium oxide 11129-60-5, Manganese oxide 12000-57-6, Burnt sienna 12001-99-9, Viridian 12035-39-1, Nickel titanate 12136-45-7, Potassium oxide, uses 12227-89-3, Mars black 12240-15-2, Prussian blue 12645-46-4, Iridium oxide 12769-96-9, Ultramarine violet 13463-67-7, Titanium oxide (TiO<sub>2</sub>), uses 13782-01-9, Aureolin 20667-12-3, Silver oxide 37300-23-5, Zinc yellow 39283-39-1, Quinacridone red 51931-46-5, Nickel azo yellow 57455-37-5, Ultramarine blue 58339-34-7, Cadmium red 64294-91-3, Yellow ochre 71538-26-6, Rose madder 82196-89-2, Cobalt violet 144892-73-9, Aluminum hydrate 210637-30-2, Milliken Blue 10061-52 210637-39-1, Spectra Fix Black MW-B 210637-40-4, Spectra Fix Red 195 215247-95-3, Dioxazine violet  
RL: TEM (Technical or engineered material use); USES (Uses)  
(improvement of adhesion and/or colorfastness of ink jet inks with respect to substrates by adding .alpha.-hydroxy carboxylic acid-metal chelates)

IT 111-46-6, uses

RL: NUU (Other use, unclassified); USES (Uses)  
(improvement of adhesion and/or colorfastness of ink jet inks with respect to substrates by adding .alpha.-hydroxy carboxylic acid-metal chelates)

RN 111-46-6 HCAPLUS

CN Ethanol, 2,2'-oxybis- (9CI) (CA INDEX NAME)

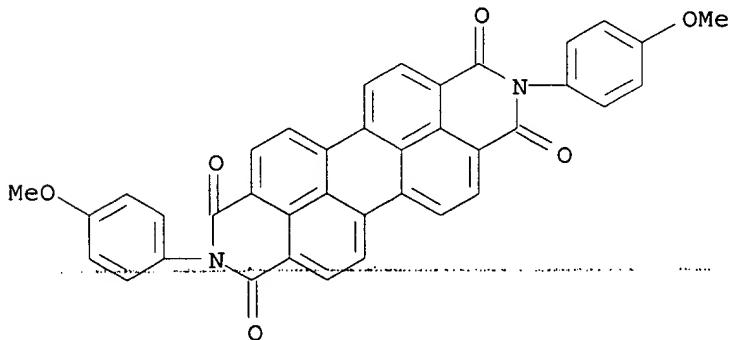


IT 6424-77-7, Perylene red

RL: TEM (Technical or engineered material use); USES (Uses)  
(improvement of adhesion and/or colorfastness of ink jet inks with respect to substrates by adding .alpha.-hydroxy carboxylic acid-metal chelates)

RN 6424-77-7 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

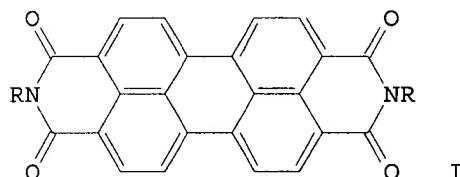
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THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1992:593603 HCAPLUS  
 DOCUMENT NUMBER: 117:193603  
 TITLE: Preparation of black perylenetetracarboxylic diimide  
 camouflage pigments  
 INVENTOR(S): Kleine, Fritz  
 PATENT ASSIGNEE(S): Chemiekombinat Bitterfeld, Germany  
 SOURCE: Ger. (East), 13 pp.  
 CODEN: GEXXA8  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 299733	A7	19920507	DD 1980-226325	19801223
PRIORITY APPLN. INFO.:			DD 1980-226325	19801223
OTHER SOURCE(S):		MARPAT 117:193603		

GI



AB The title pigments [I; R = 2-hydroxypropyl, Bu, 2-hydroxyethyl, 2-aminoethyl, C(:NH)NHCH, C(:NH)NH2, NHC(:NH)NH2, C(:NH)NHCONH2, or 1-carbamidino-3-methyl-5-pyrazolone optionally with 4-Cl or 4-NO2 group] are obtained by heating perylenetetracarboxylic acid or dianhydride (II) with the appropriate amine for 30-150 min at 160-230.degree. in a C5-12 di- or trialc. or its mono or diether or an araliph. alc. or its ester. I have very little diffuse reflection (d) at 380-680 nm and very high d at 740-1280 nm. Thus, diethylene glycol 100, II 30, and ethylenediamine were heated to 110.degree. and then kept 30 min at 200.degree. to give 37.5 parts I (R = 2-aminoethyl).

IC ICM C09B005-62

ICS C09D005-30

CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

IT 26872-64-0P 28226-34-8P 52000-75-6P

87710-94-9P 143992-60-3P 143992-61-4P

143992-62-5P 143992-63-6P 143992-64-7P

143992-65-8P 143992-66-9P

RL: IMF (Industrial manufacture); PREP (Preparation)  
 (prepn. of, as camouflage pigments)

IT 100-51-6, Benzyl alcohol, uses 107-21-1, 1,2-Ethanediol, uses

111-46-6, uses 111-87-5, 1-Octanol, uses 112-27-6, Triglycol

122-99-6, 2-Phenoxyethanol

RL: USES (Uses)

(solvent, for condensation of perylenetetracarboxylic dianhydride with amines)

IT 26872-64-0P 28226-34-8P 52000-75-6P

Jon Epperson 09/804,893

87710-94-9P 143992-60-3P 143992-61-4P

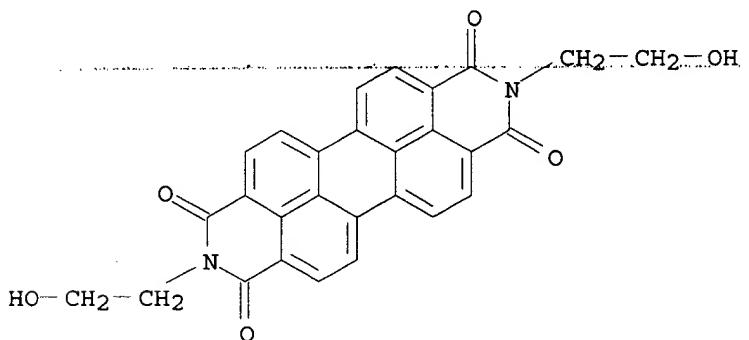
143992-62-5P 143992-63-6P 143992-64-7P

143992-65-8P 143992-66-9P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(prepn. of, as camouflage pigments)

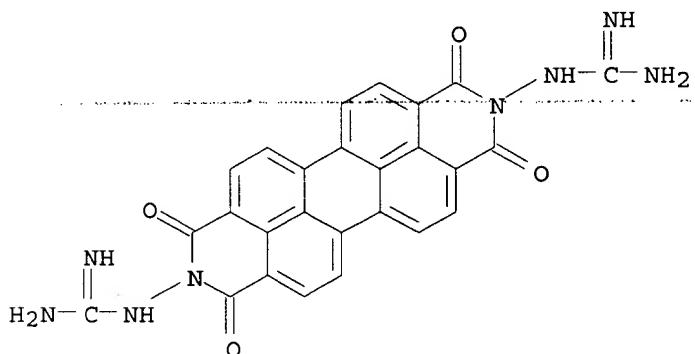
RN 26872-64-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis(2-hydroxyethyl)- (9CI) (CA INDEX NAME)



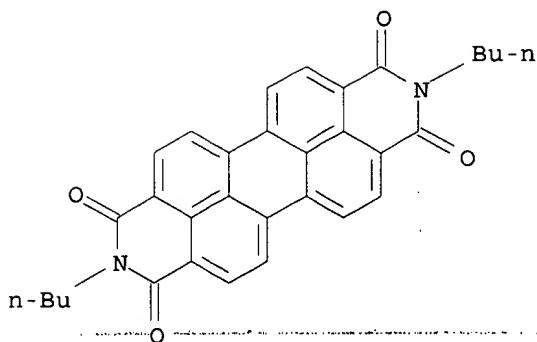
RN 28226-34-8 HCAPLUS

CN Guanidine, N,N''-(1,3,8,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-diyl)bis- (9CI) (CA INDEX NAME)



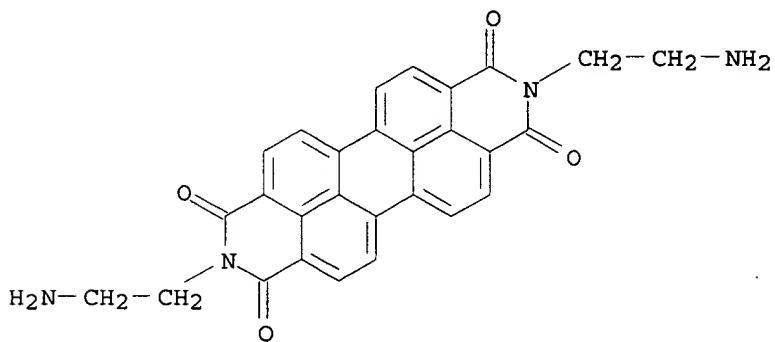
RN 52000-75-6 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-dibutyl- (9CI) (CA INDEX NAME)



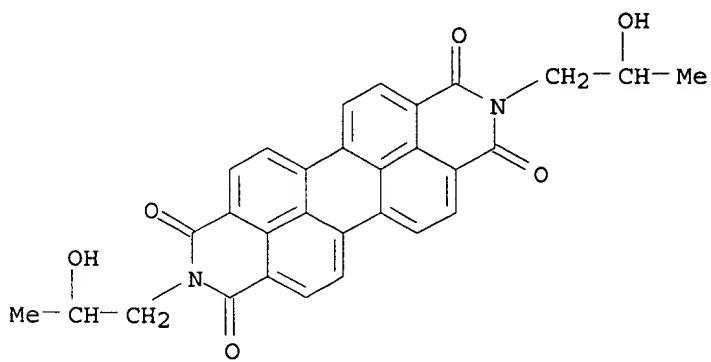
RN 87710-94-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis(2-aminoethyl)- (9CI) (CA INDEX NAME)



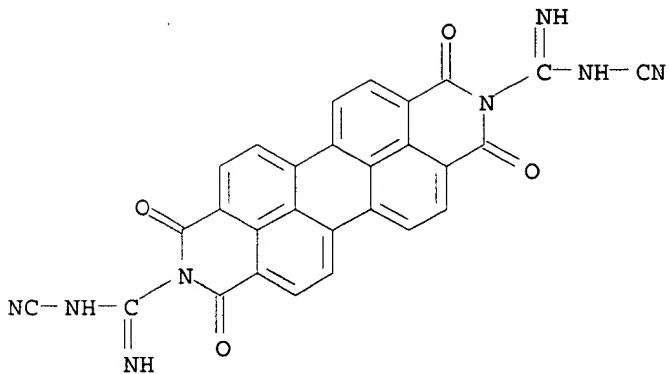
RN 143992-60-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis(2-hydroxypropyl)- (9CI) (CA INDEX NAME)



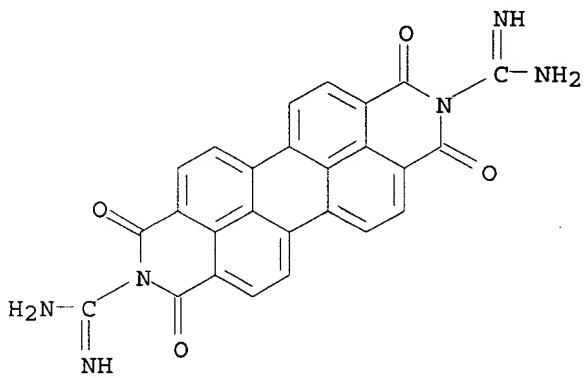
RN 143992-61-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-dicarboximidamide,  
N,N''-dicyano-1,3,8,10-tetrahydro-1,3,8,10-tetraoxo- (9CI) (CA INDEX  
NAME)



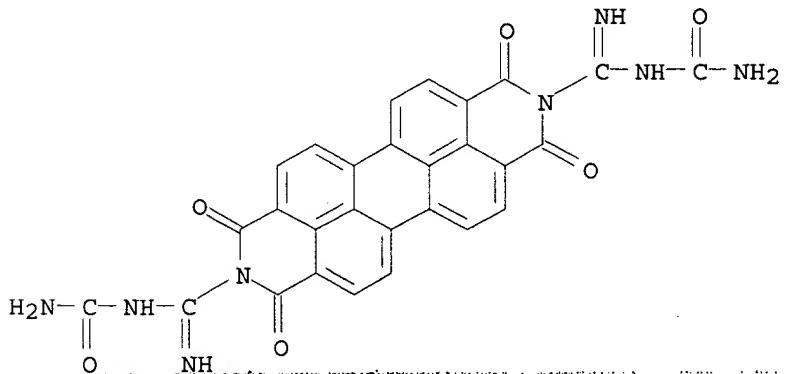
RN 143992-62-5 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-dicarboximidamide,  
1,3,8,10-tetrahydro-1,3,8,10-tetraoxo- (9CI) (CA INDEX NAME)



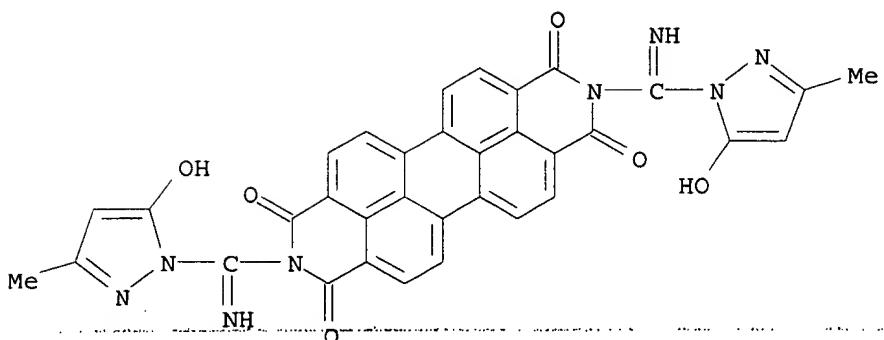
RN 143992-63-6 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-dicarboximidamide,  
N,N''-bis(aminocarbonyl)-1,3,8,10-tetrahydro-1,3,8,10-tetraoxo- (9CI) (CA  
INDEX NAME)



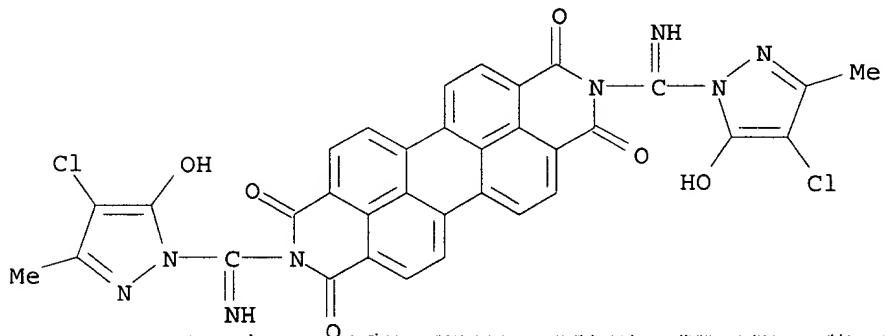
RN 143992-64-7 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[(5-hydroxy-3-methyl-1H-pyrazol-1-yl)iminomethyl]- (9CI) (CA INDEX  
NAME)



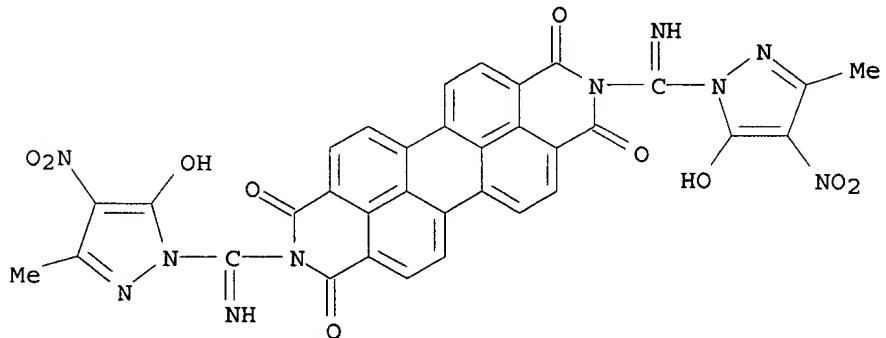
RN 143992-65-8 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[(4-chloro-5-hydroxy-3-methyl-1H-pyrazol-1-yl)iminomethyl]- (9CI)  
(CA INDEX NAME)



RN 143992-66-9 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[(5-hydroxy-3-methyl-4-nitro-1H-pyrazol-1-yl)iminomethyl]- (9CI)  
(CA INDEX NAME)

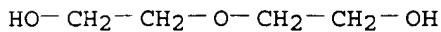


IT 111-46-6, uses

RL: USES (Uses)

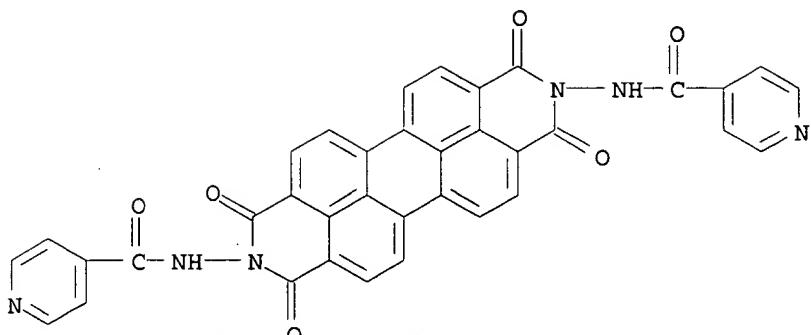
(solvent, for condensation of perylenetetracarboxylic dianhydride with  
amines)

RN 111-46-6 HCAPLUS  
 CN Ethanol, 2,2'-oxybis- (9CI) (CA INDEX NAME)



L16 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1992:552769 HCAPLUS  
 DOCUMENT NUMBER: 117:152769  
 TITLE: Preparation of perylenetetracarboxylic diimides  
 INVENTOR(S): Kleine, Fritz  
 PATENT ASSIGNEE(S): Chemic A.-G. Bitterfeld-Wolfen, Germany  
 SOURCE: Ger. (East), 4 pp.  
 CODEN: GEXXA8  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 299734	A7	19920507	DD 1980-226328	19801223
PRIORITY APPLN. INFO.:			DD 1980-226328	19801223
AB	Diimide pigments are obtained from perylenetetracarboxylic acid or its dianhydride (I) and amino, amidino, or hydrazino compds. by heating at 130-280.degree. in C5-12 mono-, di-, or trihydric alcs. or their (partial) ethers or esters, arylaliph. alcs., or their esters. Thus, a mixt. of diethylene glycol 100, I 30, and isonicotinic acid hydrazide 24.8 parts was heated at 110-120.degree. and then 40 min at 220.degree. to give 48 parts bright red pigment.			
IC	ICM C09B005-62			
CC	41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)			
IT	143676-73-7P RL: IMF (Industrial manufacture); PREP (Preparation) (prep. of, as red pigment)			
IT	111-46-6, uses RL: USES (Uses) (solvents, in prepn. of pigments from perylenetetracarboxylic dianhydride and amino, amidino or hydrazino compds.)			
IT	143676-73-7P RL: IMF (Industrial manufacture); PREP (Preparation) (prep. of, as red pigment)			
RN	143676-73-7 HCAPLUS			
CN	4-Pyridinecarboxamide, N,N'-(1,3,8,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-diyl)bis- (9CI) (CA INDEX NAME)			



IT 111-46-6, uses  
 RL: USES (Uses)  
 (solvents, in prepn. of pigments from perylenetetracarboxylic dianhydride and amino, amidino or hydrazino compds.)  
 RN 111-46-6 HCAPLUS  
 CN Ethanol, 2,2'-oxybis- (9CI) (CA INDEX NAME)

HO—CH<sub>2</sub>—CH<sub>2</sub>—O—CH<sub>2</sub>—CH<sub>2</sub>—OH

L18 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:693662 HCAPLUS  
 DOCUMENT NUMBER: 135:269657  
 TITLE: Biomarkers for the labeling, visual detection and quantification of biomolecules  
 INVENTOR(S): Bevers, Susan Ann; Andrade, Rodrigo Bohn; Alexandrov, Kiril Stefan; Zdraveski, Zoran Zare  
 PATENT ASSIGNEE(S): Genigma Corporation, USA  
 SOURCE: PCT Int. Appl., 54 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001069254	A2	20010920	WO 2001-US7885	20010313
WO 2001069254	A3	20020530		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002012947	A1	20020131	US 2001-804893	20010313
EP 1266222	A2	20021218	EP 2001-918584	20010313

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: US 2000-189264P P 20000314  
US 2000-209188P P 20000605  
WO 2001-US7885 W 20010313

OTHER SOURCE(S): MARPAT 135:269657

AB This invention relates to the detection of biomols. In particular, the invention relates to biomarkers for the labeling, visual detection and quantification of biomols. The invention provides visually detectable biomols. and reagents for their prepn., as well as methods for visually detecting a biomol. and for detg. the size of a biomol. The labeled biomols. of the invention are intensely colored and can be readily obsd. by visual inspection, without prior illumination or chem. or enzymic activation.

IC ICM G01N033-532

ICS C12Q001-68; G01N033-52; G01N033-68; C09B062-00

CC 9-14 (Biochemical Methods)

ST biomarker labeling biomol DNA array proteins mol wt  
migration

IT Proteins, specific or class

RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)  
(DNA-binding; biomarkers for labeling, visual detection and  
quantification of biomols.)

IT Immunoglobulins

Proteins, specific or class

RL: ANT (Analyte); ANST (Analytical study)  
(G; biomarkers for labeling, visual detection and  
quantification of biomols.)

IT DNA microarray technology

Diffusion

Dyes

Lymphocyte

Microscopy

Molecular weight

Nucleic acid hybridization

Standard substances, analytical

Test kits

(biomarkers for labeling, visual detection and quantification  
of biomols.)

IT Amino acids, reactions

Antibodies

Carbohydrates, reactions

Enzymes, reactions

Glycoproteins, general, reactions

Nucleic acids

Proteins, general, reactions

Receptors

RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);  
RACT (Reactant or reagent); USES (Uses)  
(biomarkers for labeling, visual detection and quantification  
of biomols.)

IT DNA

RNA

RL: ANT (Analyte); ARG (Analytical reagent use); RCT (Reactant); ANST  
(Analytical study); RACT (Reactant or reagent); USES (Uses)  
(ladder; biomarkers for labeling, visual detection and  
quantification of biomols.)

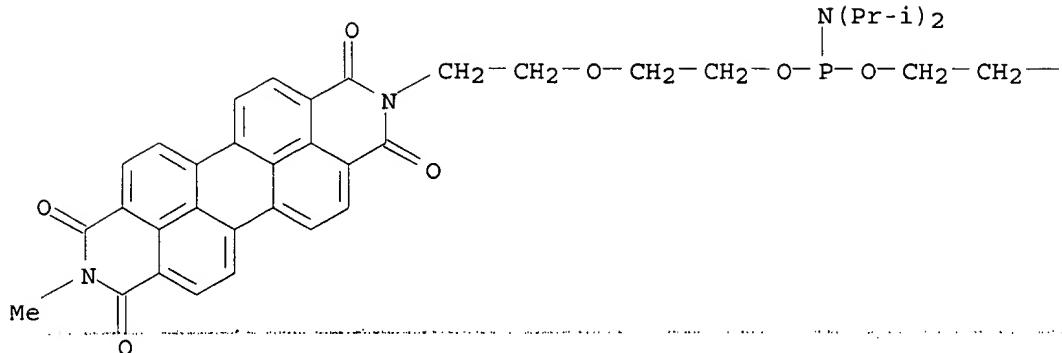
IT Analytical apparatus

Microanalysis

(microarray, carbohydrate; biomarkers for labeling, visual

IT detection and quantification of biomols.)  
IT Ligands  
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);  
RACT (Reactant or reagent); USES (Uses)  
(receptor; biomarkers for labeling, visual detection and  
quantification of biomols.)  
IT 198-55-0DP, Perylene, derivs. 361335-58-2P 361335-59-3P  
361335-60-6P 361335-61-7P 361335-62-8P  
RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic  
preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant  
or reagent); USES (Uses)  
(biomarkers for labeling, visual detection and quantification  
of biomols.)  
IT 361335-77-5P  
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
(Analytical study); PREP (Preparation); USES (Uses)  
(biomarkers for labeling, visual detection and quantification  
of biomols.)  
IT 74-89-5, Methylamine, reactions 75-09-2D, Dichloromethane, anhyd.  
123-75-1, Pyrrolidine, reactions 128-69-8, Perylenetetracarboxylic  
dianhydride 288-32-4, Imidazole, reactions 429-41-4,  
Tetrabutylammonium fluoride 538-75-0, Dicyclohexylcarbodiimide  
929-06-6, 2-(2-Aminoethoxy)ethanol 998-40-3, Tributyl phosphine  
5970-45-6, Zinc acetate dihydrate 6066-82-6, N-Hydroxysuccinimide  
7087-68-5, Diisopropylethylamine 7726-95-6, Bromine, reactions  
9013-20-1, Streptavidin 15663-27-1, Cisplatin 18162-48-6,  
tert-Butyldimethylsilyl chloride 89992-70-1 361335-73-1  
361335-75-3 361335-79-7  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(biomarkers for labeling, visual detection and quantification  
of biomols.)  
IT 118129-60-5P, 1,7-Dibromoperylene-3,4,9,10-tetracarboxylic dianhydride  
215297-17-9P 286014-33-3P 361335-63-9P 361335-64-0P  
361335-65-1P 361335-67-3P 361335-69-5P  
361335-71-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(biomarkers for labeling, visual detection and quantification  
of biomols.)  
IT 362541-79-5  
RL: PRP (Properties)  
(unclaimed sequence; biomarkers for the labeling, visual  
detection and quantification of biomols.)  
IT 361335-58-2P 361335-59-3P 361335-60-6P  
361335-61-7P 361335-62-8P  
RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic  
preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant  
or reagent); USES (Uses)  
(biomarkers for labeling, visual detection and quantification  
of biomols.)  
RN 361335-58-2 HCPLUS  
CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl  
2-[2-(3,8,9,10-tetrahydro-9-methyl-1,3,8,10-tetraoxoanthra[2,1,9-  
def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA  
INDEX NAME)

PAGE 1-A

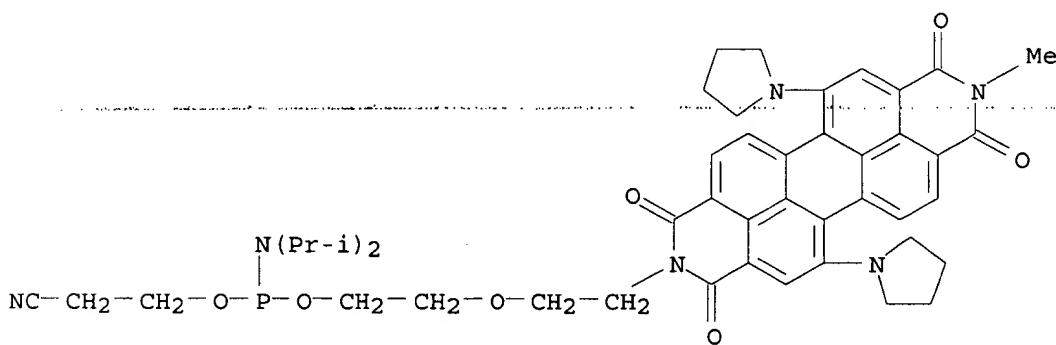


PAGE 1-B

— CN

RN 361335-59-3 HCPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl  
2-[2-(3,8,9,10-tetrahydro-9-methyl-1,3,8,10-tetraoxo-5,12-di-1-pyrrolidinylanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)

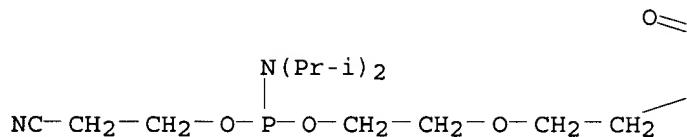


RN 361335-60-6 HCPLUS

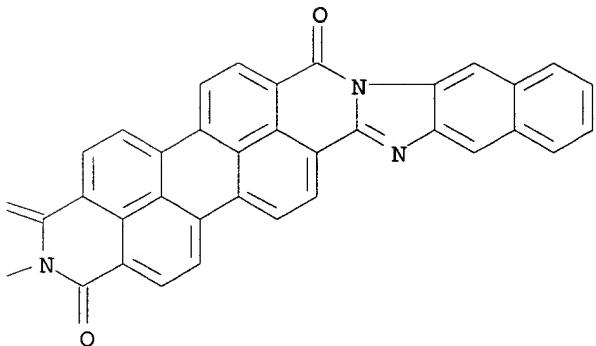
CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl  
2-[2-(3,8-dihydro-1,3,8-trioxoisoquinino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-a]isoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)

Jon Epperson 09/804, 893

PAGE 1-A

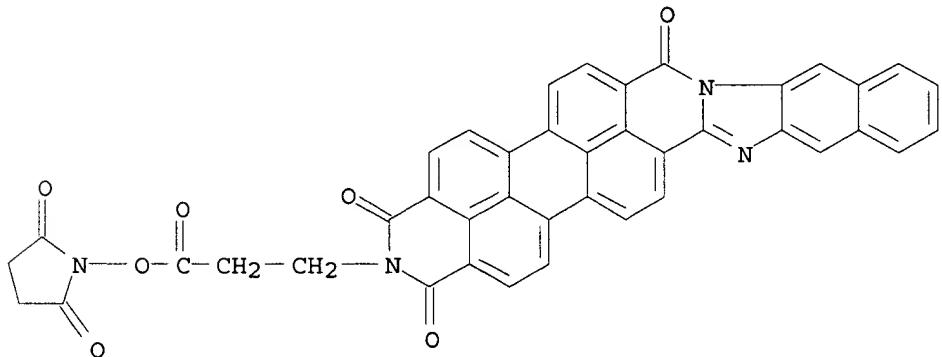


PAGE 1-B



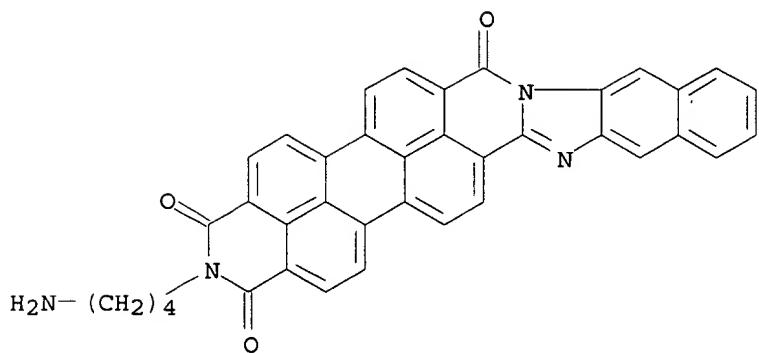
RN 361335-61-7 HCAPLUS

CN Isoquino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-a]isoquinoline-1,3,8(2H)-trione, 2-[3-[(2,5-dioxo-1-pyrrolidinyl)oxy]-3-oxopropyl]- (9CI) (CA INDEX NAME)



RN 361335-62-8 HCAPLUS

CN Isoquino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-a]isoquinoline-1,3,8(2H)-trione, 2-(4-aminobutyl)- (9CI) (CA INDEX NAME)



IT 361335-77-5P

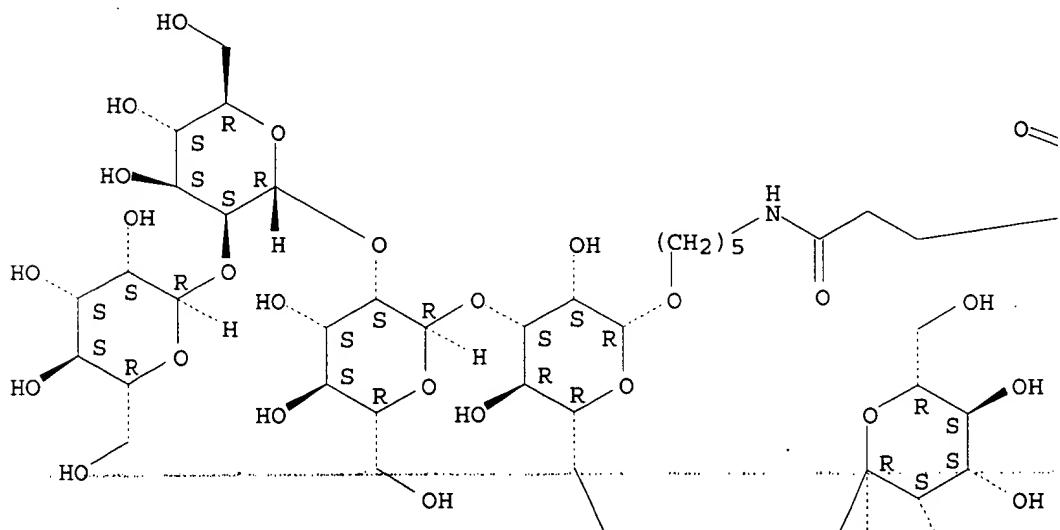
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
(biomarkers for labeling, visual detection and quantification of biomols.)

RN 361335-77-5 HCPLUS

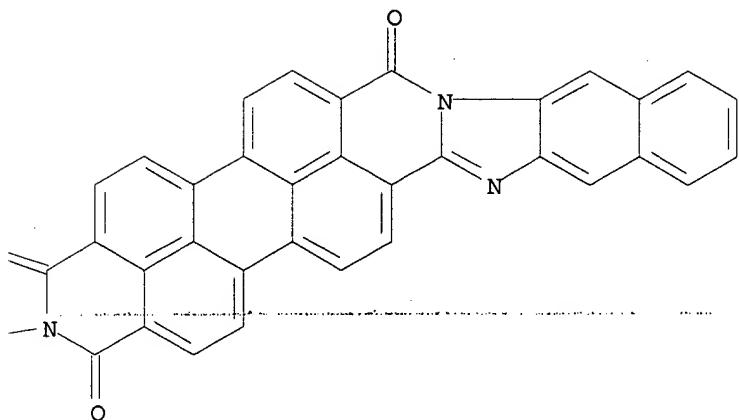
CN Isoquinolo[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-a]isoquinoline-2(1H)-propanamide, 3,8-dihydro-N-[5-[(O-.alpha.-D-mannopyranosyl-(1.fwdarw.2)-O-.alpha.-D-mannopyranosyl-(1.fwdarw.2)-O-O-.alpha.-D-mannopyranosyl-(1.fwdarw.2)-.alpha.-D-mannopyranosyl-(1.fwdarw.3)]-O-.alpha.-D-mannopyranosyl-(1.fwdarw.6)-O-[O-.alpha.-D-mannopyranosyl-(1.fwdarw.2)-O-.alpha.-D-mannopyranosyl-(1.fwdarw.2)-.alpha.-D-mannopyranosyl-(1.fwdarw.3)]-.beta.-D-mannopyranosyl)oxy]pentyl]-1,3,8-trioxo- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

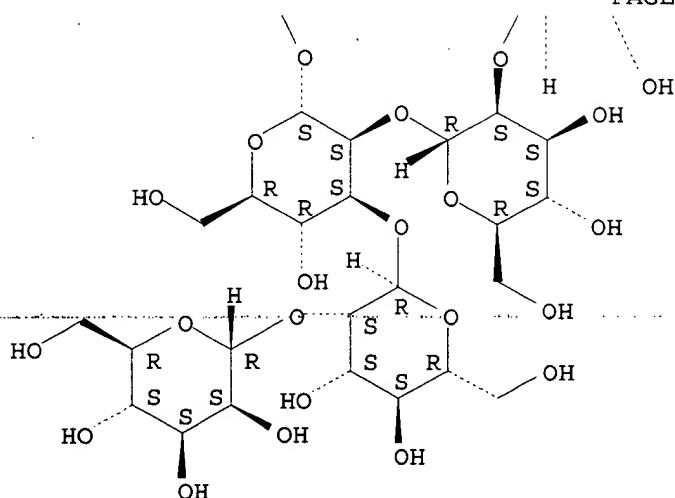
PAGE 1-A



PAGE 1-B



PAGE 2-A



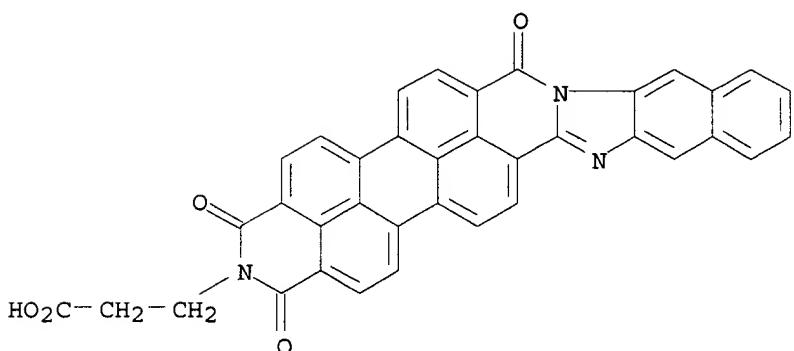
IT 361335-73-1 361335-75-3

RL: RCT (Reactant); RACT (Reactant or reagent)

(biomarkers for labeling, visual detection and quantification  
of biomols.)

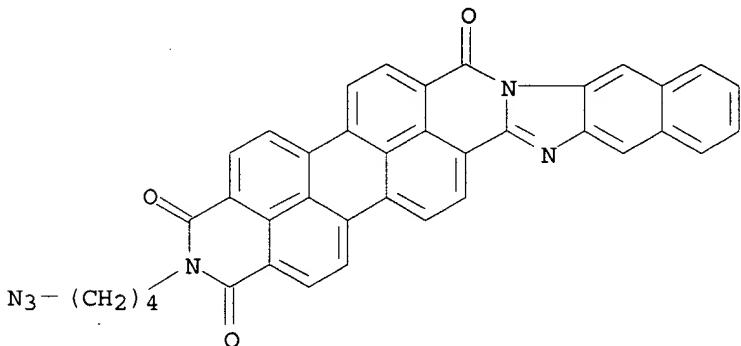
RN 361335-73-1 HCAPLUS

CN Isoquino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-a]isoquinoline-2(1H)-propanoic acid, 3,8-dihydro-1,3,8-trioxo- (9CI) (CA INDEX NAME)



RN 361335-75-3 HCAPLUS

CN Isoquinolo[6',5':10,5,6]anthra[2',3':4,5]imidazo[2,1-a]isoquinoline-1,3,8(2H)-trione, 2-(4-azidobutyl) - (9CI) (CA INDEX NAME)



IT 286014-33-3P 361335-64-0P 361335-67-3P

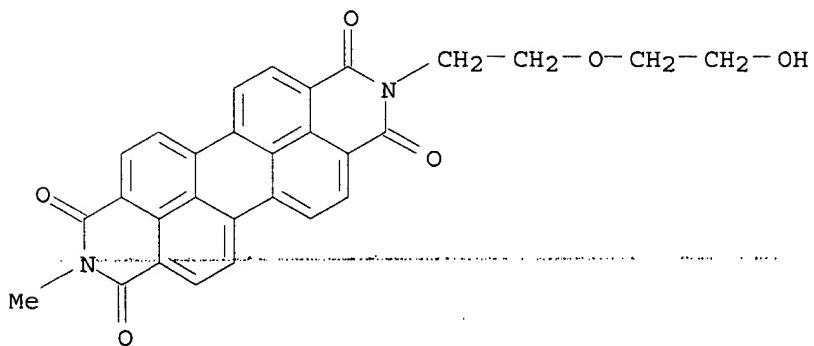
361335-69-5P 361335-71-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(biomarkers for labeling, visual detection and quantification  
of biomols.)

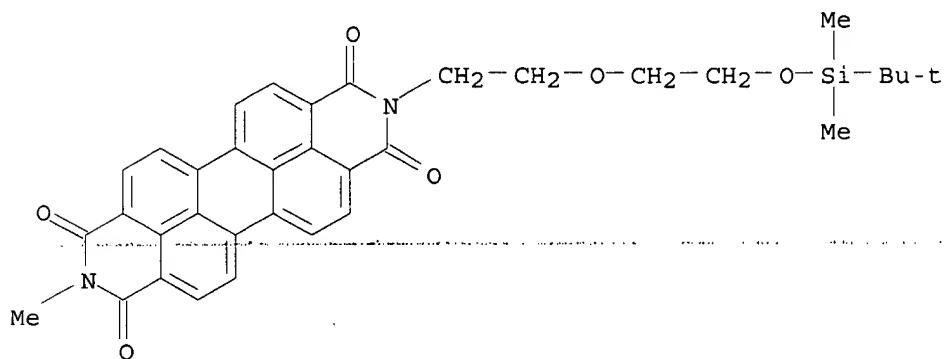
RN 286014-33-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-(2-hydroxyethoxy)ethyl]-9-methyl - (9CI) (CA INDEX NAME)



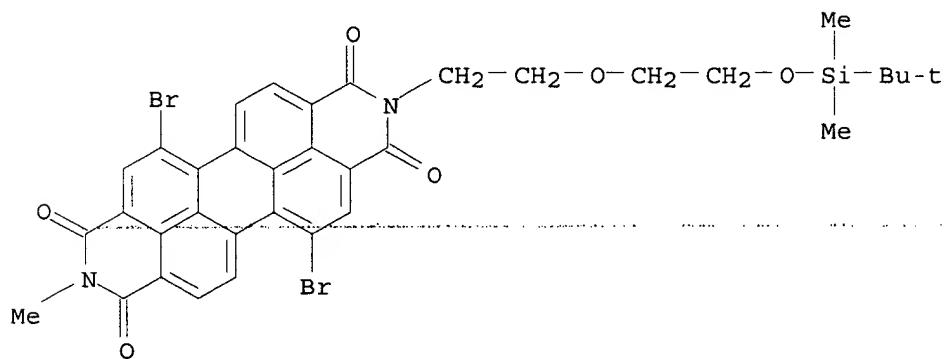
RN 361335-64-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-methyl-  
(9CI) (CA INDEX NAME)



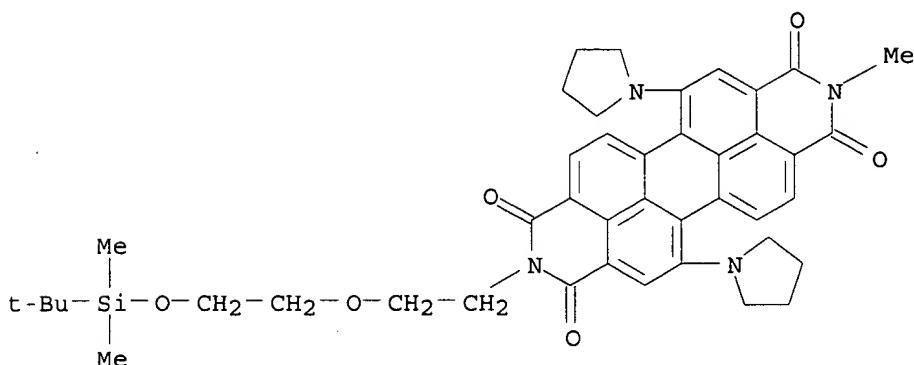
RN 361335-67-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
5,12-dibromo-2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-  
9-methyl- (9CI) (CA INDEX NAME)

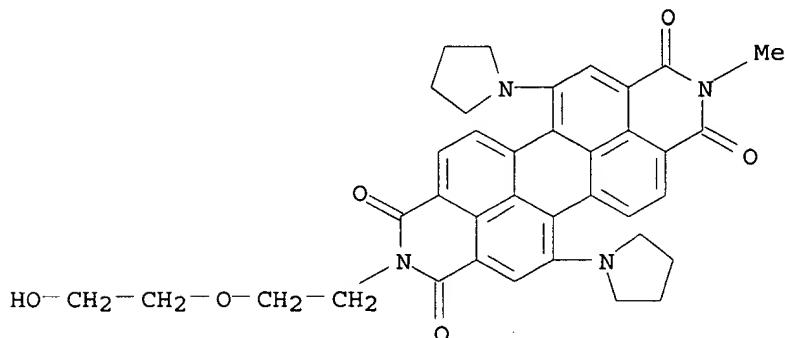


RN 361335-69-5 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-methyl-5,12-  
di-1-pyrrolidinyl- (9CI) (CA INDEX NAME)



RN 361335-71-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-(2-hydroxyethoxy)ethyl]-9-methyl-5,12-di-1-pyrrolidinyl- (9CI) (CA  
INDEX NAME)

L18 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:9238 HCAPLUS

DOCUMENT NUMBER: 126:33591

TITLE: Biological adsorption supports from metal coated  
submicron crystalline whiskers

INVENTOR(S): Coleman, Patrick L.; Debe, Mark K.; Stahl, Julie B.

PATENT ASSIGNEE(S): Minnesota Mining and Mfg. Co., USA

SOURCE: PCT Int. Appl., 40 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9634670	A1	19961107	WO 1996-US4485	19960401
W:	AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI			
RW:	KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML			

Jon Epperson 09/804, 893

CA 2218888	AA	19961107	CA 1996-2218888	19960401
AU 9655313	A1	19961121	AU 1996-55313	19960401
EP 823857	A1	19980218	EP 1996-912525	19960401
EP 823857	B1	20020717		
R: DE, FR, GB, IT				
CN 1183735	A	19980603	CN 1996-193700	19960401
JP 11504852	T2	19990511	JP 1996-533302	19960401
PRIORITY APPLN. INFO.:			US 1995-434930	A 19950504
			WO 1996-US4485	W 19960401

AB The biol. assay and adsorption supports comprise an inert substrate, preferably a polyimide film such as KAPTON, supporting a nanostructured surface contg. metal coated, oriented, discrete submicron-size whiskers, preferably of cryst. C.I. Pigment Red 149 [N,N'-Di(3,5-xylyl)perylene-3,4:9,10-bis(dicarboximide)]. The metal coating is a noble metal, e.g., Cu, Pt, CoCr, Fe. Optionally, conformally metal coated whiskers may be partially encapsulated or conformally coated with a second material, e.g., a latex precursor YR-43. The nanostructured surface adsorbs biomols. rapidly at high levels of tight binding without vortexing or agitation. Advantageously, the bound biomols. retain their biol. activity. The adsorbents can be used in separators, sensors, immunoassays, extn. app., filters.

IC ICM B01D015-00  
ICS G01N033-53; B01J020-32

CC 47-2 (Apparatus and Plant Equipment)  
Section cross-reference(s): 9, 34, 63

ST biomol adsorbent metal coated cryst whisker

IT Proteins, specific or class  
RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(A; metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

IT Immunoglobulins  
RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(G, antibody; metal-coated cryst. whisker adsorbent for biomols with bioactivity retention)

IT Antibodies  
RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(IgG; metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

IT Reactors  
(catalytic; metal-coated cryst. whisker adsorbent for biomols with bioactivity retention)

IT Adsorption apparatus  
Biochemical molecules  
Extraction apparatus  
Filters  
Immunoassay  
Sensors  
(metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

IT Noble metals  
Platinum-group metals  
Polyimides, uses  
RL: DEV (Device component use); USES (Uses)  
(metal-coated cryst. whisker adsorbent for biomols. with

bioactivity retention)  
IT Proteins, general, uses  
RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

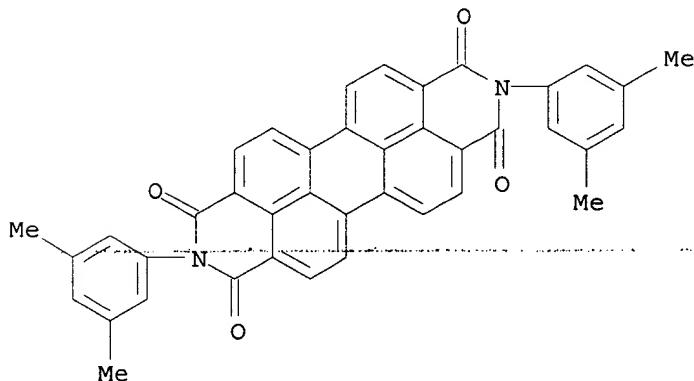
IT Albumins, uses  
RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(serum; metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

IT 4948-15-6, N,N'-Di(3,5-xylyl)perylene-3,4:9,10-bis(dicarboximide)  
7439-89-6, Iron, uses 7440-06-4, Platinum, uses 7440-50-8, Copper, uses 11114-92-4 25036-53-7, Kapton 147705-54-2, Yr 43  
RL: DEV (Device component use); USES (Uses)  
(metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

IT 4948-15-6, N,N'-Di(3,5-xylyl)perylene-3,4:9,10-bis(dicarboximide)  
RL: DEV (Device component use); USES (Uses)  
(metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

RN 4948-15-6 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



L20 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2002:450251 HCAPLUS  
DOCUMENT NUMBER: 137:17455  
TITLE: Linker molecules for selective metalization of nucleic acids and their uses  
INVENTOR(S): Ford, William; Wessels, Jurina; Yasuda, Akio  
PATENT ASSIGNEE(S): Germany  
SOURCE: U.S. Pat. Appl. Publ., 21 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002072069	A1	20020613	US 2001-8179	20011207
EP 1215199	A1	20020619	EP 2000-126966	20001208
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003026643	A2	20030129	JP 2001-371836	20011205
CN 1357536	A	20020710	CN 2001-143128	20011210

PRIORITY APPLN. INFO.: EP 2000-126966 A 20001208

AB The invention concerns to linker mols. comprising one or more nucleic acid binding group and one or more nanoparticle binding group which are connected covalently by a spacer group. The problem underlying the present invention is to provide methods for the controlled and selective metalization of nucleic acids, the prodn. of nanowires which may be used, e.g., in the formation of electronic networks and circuits allowing a high d. arrangement, and the components of devices that may be incorporated in such networks and circuits. This problem is solved by a linker mol. which comprises one or more nucleic acid binding group(s) and one or more nanoparticle binding group(s) which are connected covalently by a spacer group. Such linkers can be used for the manuf. of nucleic acid/linker conjugates, nanoparticle/linker conjugates, and nanoparticle/linker/nucleic acid composites and further nanowires, electronic networks, electronic circuits and junctions comprising said nanowires.

IC ICM C12Q001-68  
 ICS C07H021-04; C07D043-02; C07D471-06; C07D487-22  
 NCL 435006000  
 CC 9-16 (Biochemical Methods)  
 Section cross-reference(s): 6  
 ST linker nucleic acid nanoparticle complex metalization  
 immobilization nanowire  
 IT Intercalation  
     (agents; linker mols. for selective metalization of nucleic  
     acids and uses)  
 IT Alcohols, biological studies  
     Aldehydes, biological studies  
     Amines, biological studies  
     Carboxylic acids, biological studies  
     Coordination compounds  
     Disulfides  
     Epoxides  
     Ethers, biological studies  
     Halides  
     Isocyanates  
     Isothiocyanates  
     Ketones, biological studies  
     Phosphines  
     Porphyrins  
     Sulfonic acids, biological studies  
     Thioethers  
     Thiols (organic), biological studies  
     Viologens  
     RL: BSU (Biological study, unclassified); PRP (Properties); BIOL  
     (Biological study)  
       (as linkers; linker mols. for selective  
       metalization of nucleic acids and uses)  
 IT Nucleic acids  
     RL: BSU (Biological study, unclassified); PRP (Properties); BIOL

(Biological study)  
(conjugates with **linkers** and/or nanoparticles; **linker** mols. for selective metalization of nucleic acids and uses)

IT Bond  
(covalent; **linker** mols. for selective metalization of nucleic acids and uses)

IT Sulfoxides  
RL: PRP (Properties)  
(di-alkyl derivs.; **linker** mols. for selective metalization of nucleic acids and uses)

IT Carboxylic acids, properties  
RL: PRP (Properties)  
(esters, substituted; **linker** mols. for selective metalization of nucleic acids and uses)

IT Binders  
(groove-binding; **linker** mols. for selective metalization of nucleic acids and uses)

IT Alkylating agents, biological  
Catalysts  
Electric circuits  
Immobilization, molecular  
Magnetic materials  
Nanoparticles  
Nanowires  
Solutions  
(**linker** mols. for selective metalization of nucleic acids and uses)

IT Thiosulfates  
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)  
(**linker** mols. for selective metalization of nucleic acids and uses)

IT Alloys, uses  
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
(**linker** mols. for selective metalization of nucleic acids and uses)

IT DNA  
Ligands  
Nucleic acids  
Oligonucleotides  
Peptide nucleic acids  
Primers (nucleic acid)  
RNA  
RL: PRP (Properties)  
(**linker** mols. for selective metalization of nucleic acids and uses)

IT Coating process  
(metalization; **linker** mols. for selective metalization of nucleic acids and uses)

IT Peptides, biological studies  
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)  
(oligopeptides, pyrrole, as **linkers**; **linker** mols.  
for selective metalization of nucleic acids and uses)

IT Carboxylic acids, properties  
RL: PRP (Properties)  
(salts; **linker** mols. for selective metalization of nucleic acids and uses)

IT DNA  
RL: PRP (Properties)

Jon Epperson 09/804,893

(single-stranded; linker mols. for selective metalization of nucleic acids and uses)

IT 51-17-2D, Benzimidazole, derivs. 55-86-7, Nitrogen mustard 62-56-6, Thiourea, biological studies 66-97-7, Psoralen 75-00-3D, derivs. 81-33-4D, derivs. 81-83-4, 1H-Benz[de]isoquinoline-1,3(2H)-dione 84-65-1, Anthraquinone 151-56-4, Aziridine, biological studies 194-00-3D, Benzo[lmn][3,8]phenanthroline, derivs. 229-87-8, Phenanthridine 260-94-6, Acridine 505-60-2, Sulfur mustard 618-39-3D, Benzamidine, derivs. 5690-24-4 16065-88-6, Pd<sup>2+</sup>, biological studies 16065-89-7, Rh<sup>3+</sup>, biological studies 19073-37-1, Dithiophosphate 20561-59-5, Rh<sup>1+</sup>, biological studies 22541-31-7, Pt<sup>4+</sup>, biological studies 22541-59-9, Ru<sup>2+</sup>, biological studies 22541-60-2, Rh<sup>2+</sup>, biological studies 22541-88-4, Ru<sup>3+</sup>, biological studies 22542-10-5, Pt<sup>2+</sup>, biological studies 97542-80-8D, derivs. 121854-21-5D, Lexitropsin, derivs.

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(as linkers; linker mols. for selective metalization of nucleic acids and uses)

IT 594-07-0, Carbamodithioic acid 25757-41-9, Phosphonodithioic acid

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(linker mols. for selective metalization of nucleic acids and uses)

IT 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)

(linker mols. for selective metalization of nucleic acids and uses)

IT 3812-32-6, Carbonate, properties 7732-18-5, Water, properties 14265-44-2, Phosphate, properties 14265-45-3, Sulfite 14280-30-9, Hydroxide, properties 14797-55-8, Nitrate, properties 14797-65-0, Nitrite, properties 14808-79-8, Sulfate, properties

RL: PRP (Properties)

(linker mols. for selective metalization of nucleic acids and uses)

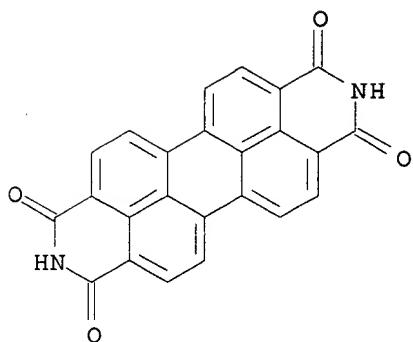
IT 81-33-4D, derivs.

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(as linkers; linker mols. for selective metalization of nucleic acids and uses)

RN 81-33-4 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone (9CI) (CA INDEX NAME)



L20 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001-714605 HCAPLUS

DOCUMENT NUMBER: 136:126372

TITLE: Synthesis and excited-state photodynamics of perylene-porphyrin dyads Part 3. Effects of perylene, linker, and connectivity on ultrafast energy transfer

AUTHOR(S): Yang, Sung Ik; Lammi, Robin K.; Prathapan, Sreedharan; Miller, Mark A.; Seth, Jyoti; Diers, James R.; Bocian, David F.; Lindsey, Jonathan S.; Holten, Dewey

CORPORATE SOURCE: Department of Chemistry, Washington University, St. Louis, MO, 63130-4899, USA

SOURCE: Journal of Materials Chemistry (2001), 11(10), 2420-2430

CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New perylene-porphyrin dyads have been designed that exhibit superior light-harvesting and energy-utilization activity compared with earlier generations of structurally related dyads. The new dyads consist of a perylene mono(imide) dye (PMI) connected to a porphyrin (Por) via an ethynylphenyl (ep) linker. The PMI-ep-Por arrays were prep'd. with the porphyrin as either a zinc or magnesium complex (Por = Zn or Mg) or a free-base form (Por = Fb). The absorption properties of the perylene complement those of the porphyrin. Following excitation of the perylene (forming PMI\*) in toluene, each array exhibits ultrafast ( $k_{ET}$ ) and essentially quant. energy transfer from PMI\* to the ground-state porphyrin (forming Por\*). In each of the arrays, the properties of the excited porphyrin (lifetime, fluorescence yield, etc.) are basically unperturbed from those of the isolated pigment. Thus, following energy transfer, the excited porphyrin is not quenched by deleterious reactions involving the perylene accessory unit that would otherwise limit the ability of Por\* to emit light or transfer energy to another stage in a mol. photonic device. Collectively, the PMI-ep-Por dyads represent the successful result of a mol. design strategy to produce arrays with excellent properties for use as light-input and energy-transduction elements for applications in mol. optoelectronics.

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT Fluorescence

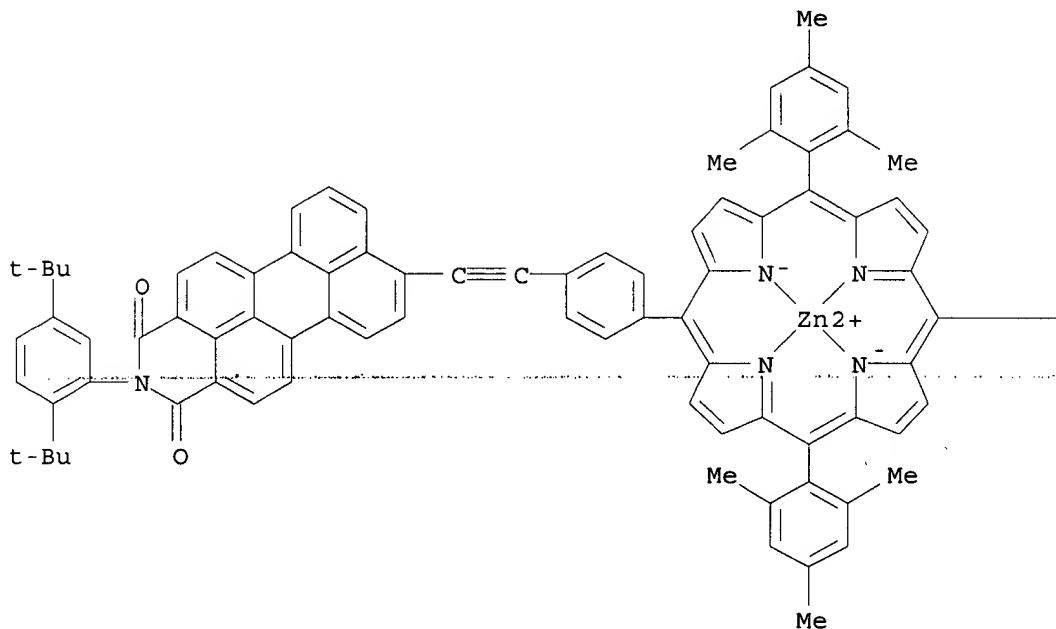
Photoinduced electron transfer

Singlet-state transition

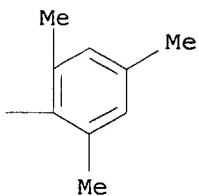
(synthesis and excited-state photodynamics of perylene-porphyrin dyads,

- effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT Optical switches
  - Oxidation potential
  - Reduction potential
    - (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to)
- IT Intersystem crossing
  - (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to heavy-atom effect)
- IT Optical absorption
  - (transient; synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to heavy-atom effect)
- IT Absorption spectra
  - (visible; synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT 303089-28-3
  - RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
    - (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT 303089-29-4
  - RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
    - (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT 390823-78-6P
  - RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
    - (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT 303089-32-9
  - RL: PRP (Properties)
    - (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to)
- IT 591-50-4, Iodobenzene
  - RL: PEP (Physical, engineering or chemical process); PROC (Process)
    - (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to heavy-atom effect)
- IT 303089-28-3
  - RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
    - (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- RN 303089-28-3 HCAPLUS
- CN Zinc, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-8-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl].1H-perylo[3,4-cd]pyridine-1,3(2H)-dionato(2-).] (SP-4-2) - (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



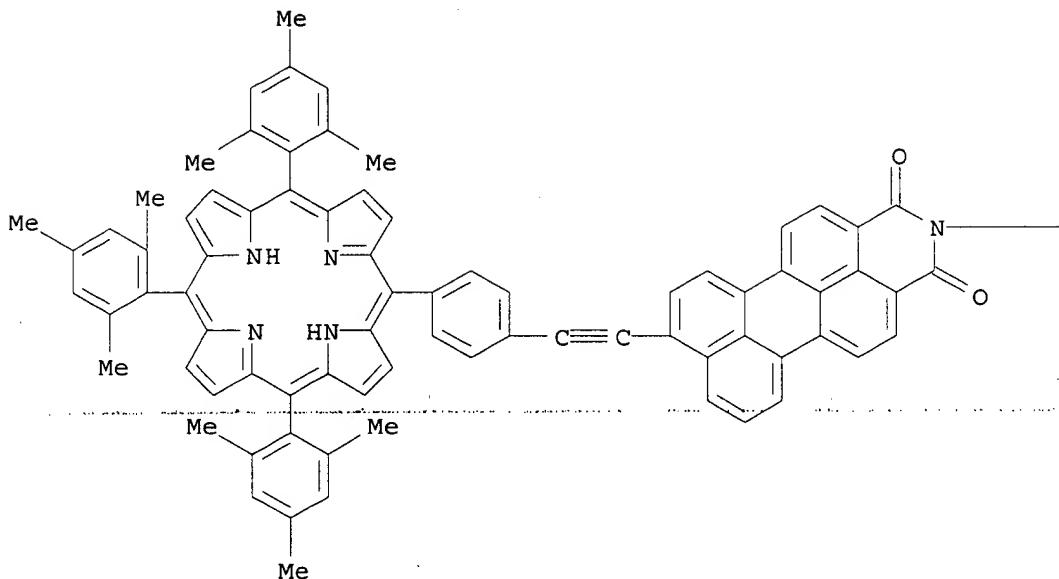
IT 303089-29-4

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(synthesis and excited-state photodynamics of perylene-porphyrin dyads,  
effects of perylene, linker, and connectivity on ultrafast  
energy transfer)

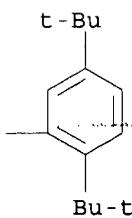
RN 303089-29-4 HCAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,5-bis(1,1-dimethylethyl)phenyl]-8-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl]phenyl]ethynyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



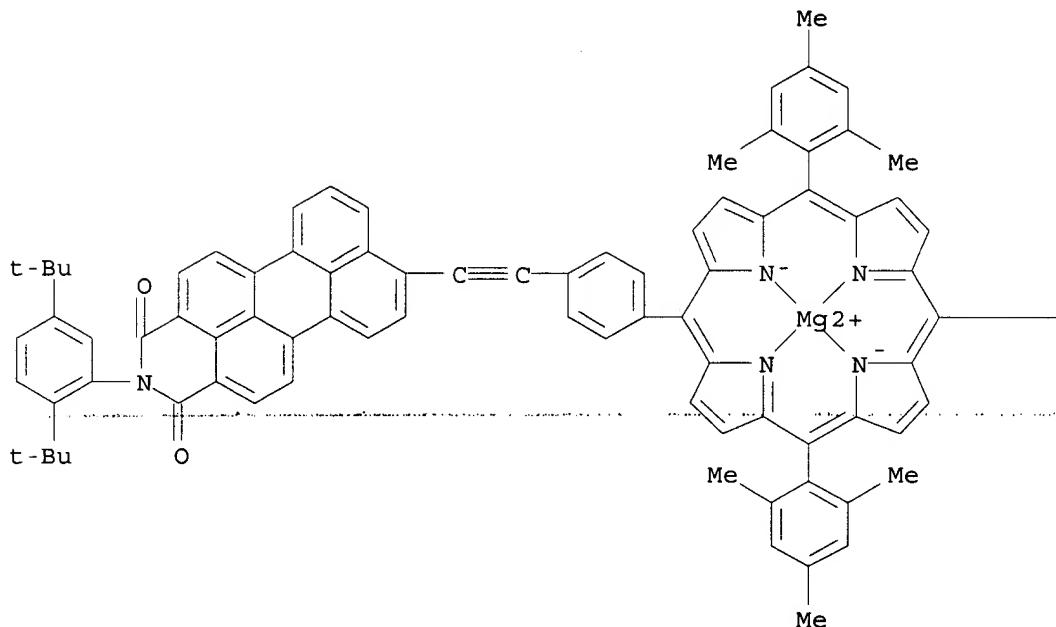
IT 390823-78-6P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(synthesis and excited-state photodynamics of perylene-porphyrin dyads,  
effects of perylene, linker, and connectivity on ultrafast  
energy transfer)

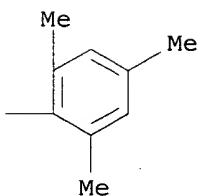
RN 390823-78-6 HCAPLUS

CN Magnesium, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-8-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl]-1H-perylo[3,4-cd]pyridine-1,3(2H)-dionato(2-)]-, (SP-4-2) - (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



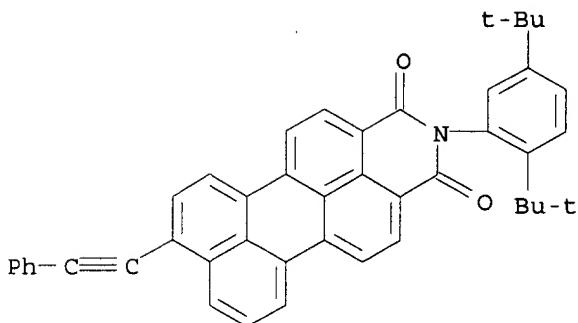
IT 303089-32-9

RL: PRP (Properties)

(synthesis and excited-state photodynamics of perylene-porphyrin dyads,  
effects of perylene, linker, and connectivity on ultrafast  
energy transfer in relation to)

RN 303089-32-9 HCPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,5-bis(1,1-dimethylethyl)phenyl]-8-(phenylethyynyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 3 OF 6 HCPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:555603 HCPLUS

DOCUMENT NUMBER: 135:325130

TITLE: Synthesis and Excited-State Photodynamics in Perylene-Porphyrin Dyads 2. Effects of Porphyrin Metalation State on the Energy-Transfer, Charge-Transfer, and Deactivation Channels

AUTHOR(S): Yang, Sung Ik; Prathapan, Sreedharan; Miller, Mark A.; Seth, Jyoti; Bocian, David F.; Lindsey, Jonathan S.; Holten, Dewey

CORPORATE SOURCE: Department of Chemistry, North Carolina State University, Raleigh, NC, 27695-8204, USA

SOURCE: Journal of Physical Chemistry B (2001), 105(34), 8249-8258

CODEN: JPCBFK; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The photophys. properties of two perylene-porphyrin dyads have been examd. in detail with the aim of expanding the functional utility of these constructs for mol. optoelectronics applications. The dyads consist of a perylene-bis(imide) dye (PDI) connected to either a magnesium porphyrin (Mg) or a free base porphyrin (Fb) via a diphenylethyne (pep) linker. The photophys. behavior of these two dyads show both similarities and differences to one another and to the dyad contg. a zinc porphyrin (Zn) that was examd. in the previous paper in this series. In the case of both PDI-pep-Fb and PDI-pep-Mg in toluene, the excited perylene unit (PDI\*) decays rapidly (Fb = 2.9 ps; Mg = 2.5 ps) by energy transfer to the porphyrin forming PDI-pep-Por\* in relatively high yield (Fb .apprx. 85%; Mg .apprx. 50%) and hole transfer to the porphyrin forming PDI--pep-Por+ (Fb .apprx. 15%; Mg .apprx. 50%). This behavior parallels that obsd. for PDI-pep-Zn, for which rapid (2.5 ps) decay of PDI\* affords PDI-pep-Zn\* and PDI--pep-Por+ with yields of 80% and 20%, resp. The subsequent behavior of the Fb-contg. dyad is distinctly different in two ways from that of the Zn or Mg porphyrin-contg. dyads.: (1) charge recombination within PDI--pep-Fb+ primarily forms PDI-pep-Fb\*, thereby complementing the formation of the latter species from PDI\*-pep-Fb.; (2) PDI-pep-Fb\* subsequently decays to the ground state via fluorescence emission with a rate and yield that are nearly identical to those of an isolated Fb porphyrin. In contrast, for both PDI-pep-Mg and PDI-pep-Zn, the predominant decay process for PDI-pep-Por\* is electron-transfer..yielding PDI--pep-Por+ (Zn .apprx. 80%; Mg >99%). The rapid electron-transfer

quenching of PDI-pep-Por\* and the nonemissive character of PDI--pep-Por+ leads to negligible fluorescence from the two metalloporphyrin-contg. dyads after photoexcitation. The PDI--pep-Por+ charge-sepd. product with Por = Mg or Zn is very long-lived (>10 ns) in toluene but decays much more rapidly (<0.5 ns) in acetonitrile. The differences in the rates of the various charge-transfer and charge-recombination processes of all of the dyads are consistent with a rate vs. free-energy-gap profile (based on the relative redox potentials of the porphyrin constituents) that is in qual. accord with electron-transfer theory. Collectively, the studies reported in this and the previous paper indicate that PDI-pep-Fb has the greatest potential utility in photonics applications wherein light harvesting by an accessory pigment, energy transport to an output chromophore, and emission (or energy transfer to another chromophore) are desired. On the other hand, PDI-pep-Mg (like PDI-pep-Zn) would be most useful as an all-optical gating element in which excited-state energy in an appended chromophore chain can be quenched by the charge-sepd. state of the perylene-porphyrin dyad, thereby shunting the light output or flow of energy.

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s) : 22

IT UV and visible spectra  
 (absorption; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Electron transfer kinetics  
 (intramol., photochem.; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Photoinduced energy transfer  
 (intramol.; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Radical ions  
 (pairs, intramol.; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Intramolecular energy transfer  
 (photoinduced; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Absorption spectra  
 Fluorescence  
 Fluorescence decay  
 Photoinduced intramolecular electron transfer  
 Physical process kinetics  
 Solvent polarity effect  
 (photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Photonics  
 (photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker in relation to)

IT 359862-69-4  
 RL: PRP (Properties)  
 (comparison compd.; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT 367889-52-9P 367906-89-6P  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN

(Synthetic preparation); PREP (Preparation); PROC (Process)  
(photophys. properties of dyads consisting of perylene-bis(imide)  
connected to either magnesium porphyrin or free base porphyrin via  
adiphenylethyne linker)

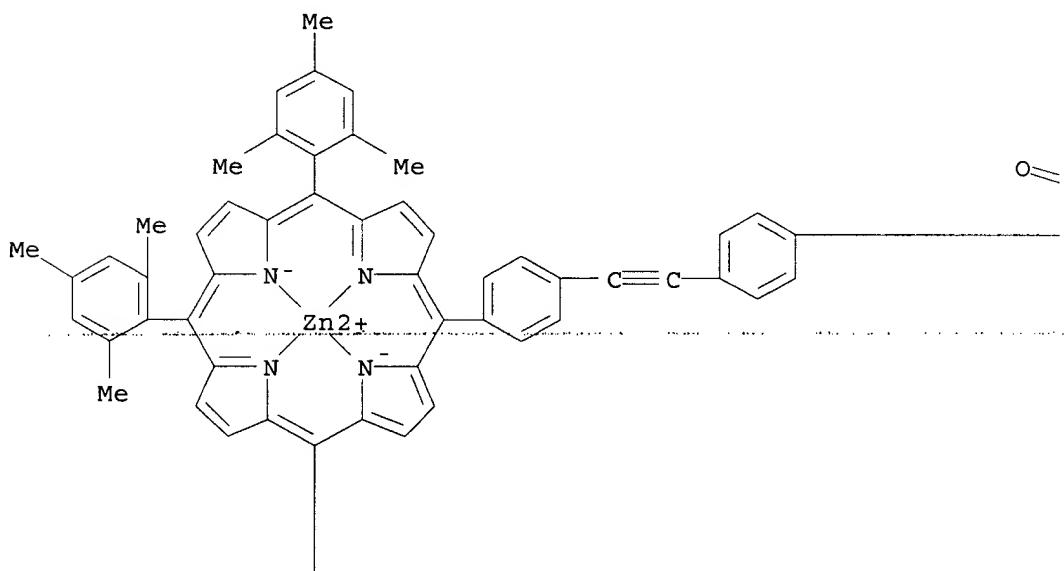
IT 75-05-8, Acetonitrile, properties 108-88-3, Toluene, properties  
RL: PRP (Properties)  
(photophys. properties of dyads consisting of perylene-bis(imide)  
connected to either magnesium porphyrin or free base porphyrin via  
adiphenylethyne linker)

IT 359862-69-4  
RL: PRP (Properties)  
(comparison compd.; photophys. properties of dyads consisting of  
perylene-bis(imide) connected to either magnesium porphyrin or free  
base porphyrin via adiphenylethyne linker)

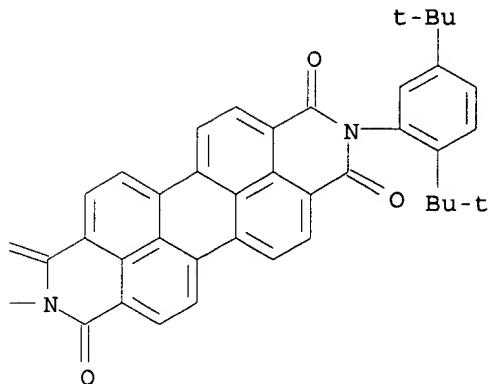
RN 359862-69-4 HCAPLUS

CN Zinc, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-[[4-[[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl]phenyl]anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetronato(2-)]-, (SP-4-2)- (9CI)  
(CA INDEX NAME)

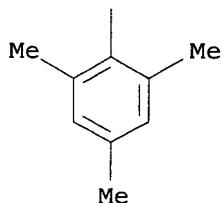
PAGE 1-A



PAGE 1-B



PAGE 2-A



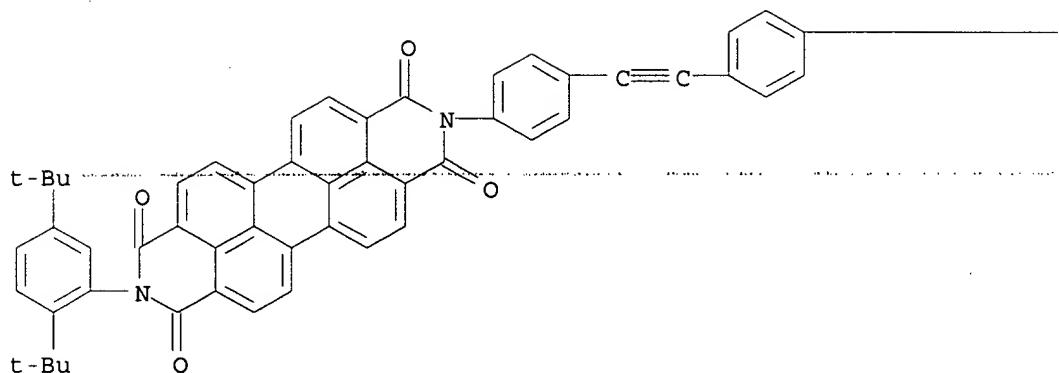
IT 367889-52-9P 367906-89-6P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

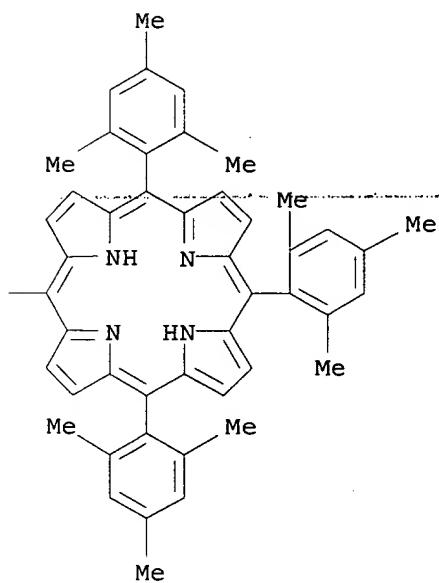
RN 367889-52-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-[4-[[4-[[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl]phenyl]ethynyl]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



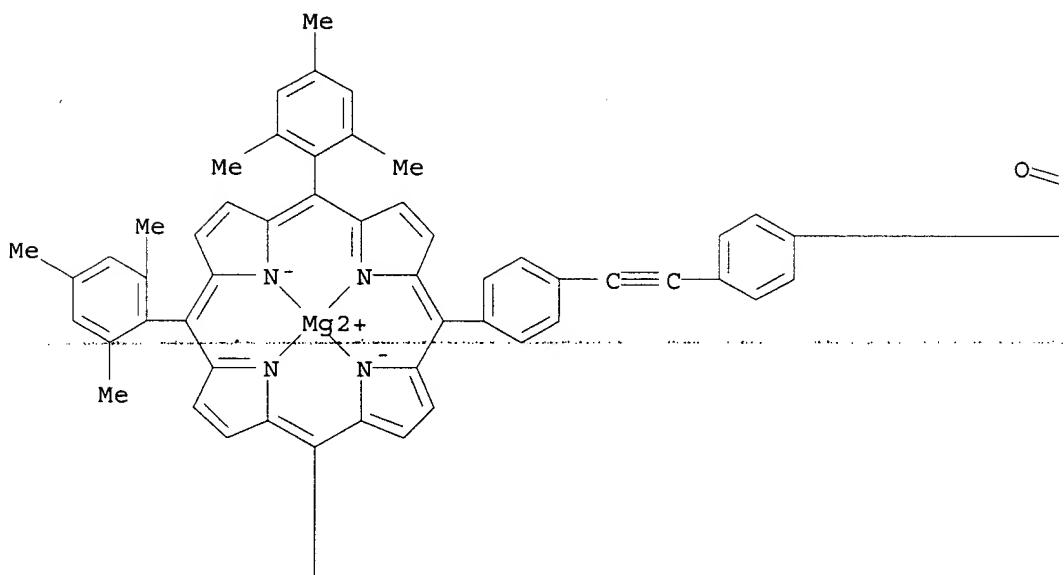
PAGE 1-B



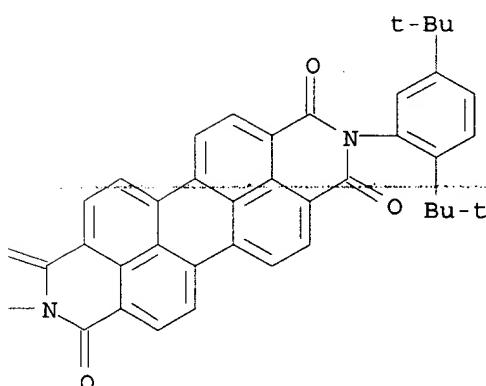
RN 367906-89-6 HCAPLUS

CN Magnesium, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-[4-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl]phenyl]anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetronato(2-)]-(SP-4-2)-(9CI) (CA INDEX NAME)

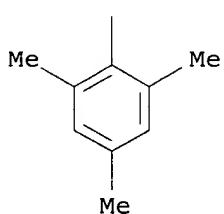
PAGE 1-A



PAGE 1-B



PAGE 2-A



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 4 OF 6 HCPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:551132 HCPLUS  
 DOCUMENT NUMBER: 135:249353  
 TITLE: Synthesis and Excited-State Photodynamics of Perylene-Porphyrin Dyads. 1. Parallel Energy and Charge Transfer via a Diphenylethyne Linker  
 AUTHOR(S): Prathapan, Sreedharan; Yang, Sung Ik; Seth, Jyoti; Miller, Mark A.; Bocian, David F.; Holten, Dewey; Lindsey, Jonathan S.  
 CORPORATE SOURCE: Department of Chemistry, North Carolina State University, Raleigh, NC, 27695-8204, USA  
 SOURCE: Journal of Physical Chemistry B (2001), 105(34), 8237-8248  
 CODEN: JPCBFK; ISSN: 1089-5647  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The photophys. properties of a perylene-porphyrin dyad have been examd. with the aim of using this construct for mol. photonics applications. The dyad consists of a perylene-bis(imide) dye (PDI) connected to a zinc porphyrin (Zn) via a diphenylethyne linker (pep). In both polar and nonpolar solvents, the photoexcited perylene unit (PDI\*) decays very rapidly (lifetimes of 2.5 (toluene) and 2.4 ps (acetonitrile)) by energy transfer to the porphyrin, forming PDI-pep-Zn\* in high yield (80%, toluene; 70% acetonitrile), and hole transfer to the porphyrin, forming PDI--pep-Zn+ in lesser yield (20%, toluene; 30% acetonitrile). In both toluene and acetonitrile, the Zn\* excited state subsequently decays with a lifetime of 0.4 ns primarily (80%) by electron transfer to the perylene (forming PDI--pep-Zn+). In the nonpolar solvent (toluene), the PDI--pep-Zn+ charge-transfer product has a lifetime of >10 ns and decays by charge recombination primarily to the ground state but also by thermal repopulation of the Zn\* excited state. The occurrence of the latter process provides a direct exptl. measure of the energy of the charge-sepd. state. In the polar solvent (acetonitrile), the PDI--pep-Zn+ charge-sepd. state decays much more rapidly (<0.5 ns) and exclusively to the ground state. In general, the complementary perylene and porphyrin absorption properties together with very fast and efficient PDI\*-pep-Zn+ fwdxarw. PDI-pep-Zn\* energy transfer suggest that perylenes have significant potential as accessory pigments in porphyrin-based arrays for light-harvesting and energy-transport applications. Furthermore, the finding of fast energy transfer initiated in PDI\*, charge-transfer reactions that can be elicited either in PDI\* or Zn\*, and a charge-sepd. state (PDI--pep-Zn+) that can be long- or short-lived depending on solvent polarity, indicates the versatility of the perylene-porphyrin motif for a variety of applications in mol. photonics.

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 IT 83054-80-2 150152-74-2  
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
 (in synthesis of perylene-zinc porphyrin dyad)  
 IT 359857-37-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (in synthesis of perylene-zinc porphyrin dyad)  
 IT 359862-69-4P  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

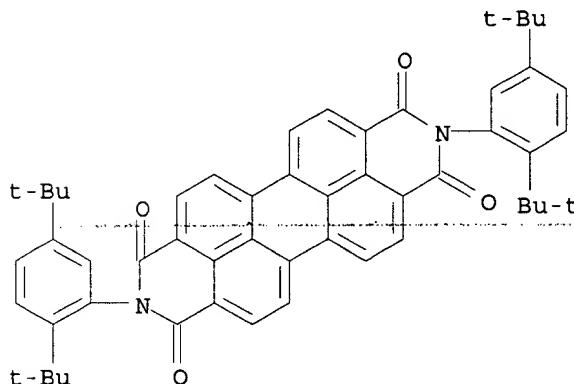
(photophys. properties of perylene-diphenylethyne bridge-zinc porphyrin dyad in different solvents and dynamics of photoinduced energy- and charge transfer in)

IT 83054-80-2

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
(in synthesis of perylene-zinc porphyrin dyad)

RN 83054-80-2 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2,9-bis[2,5-bis(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)

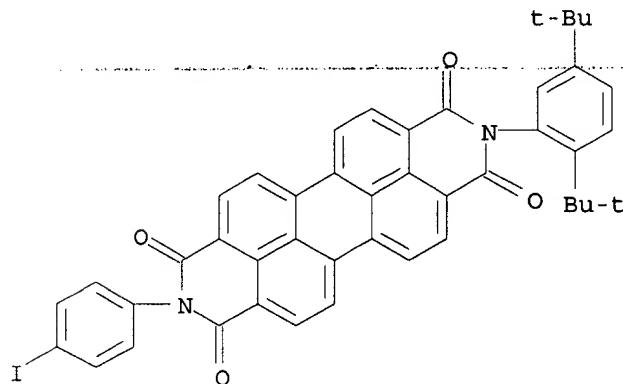


IT 359857-37-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(in synthesis of perylene-zinc porphyrin dyad)

RN 359857-37-7 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-(4-iodophenyl)- (9CI) (CA INDEX  
NAME)



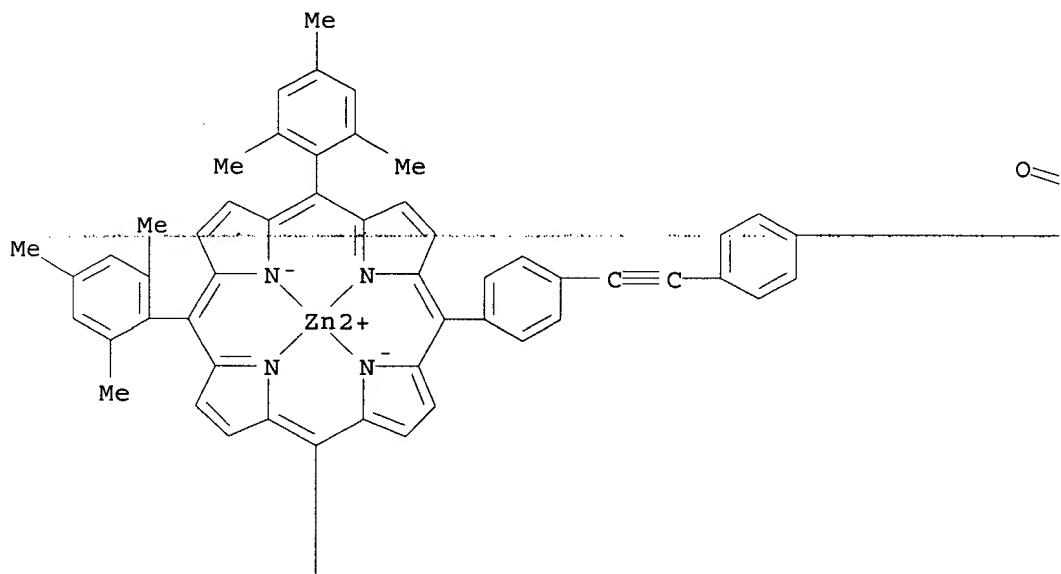
IT 359862-69-4P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN  
(Synthetic preparation); PREP (Preparation); PROC (Process)  
(photophys. properties of perylene-diphenylethyne bridge-zinc porphyrin  
dyad in different solvents and dynamics of photoinduced energy- and  
charge transfer in)

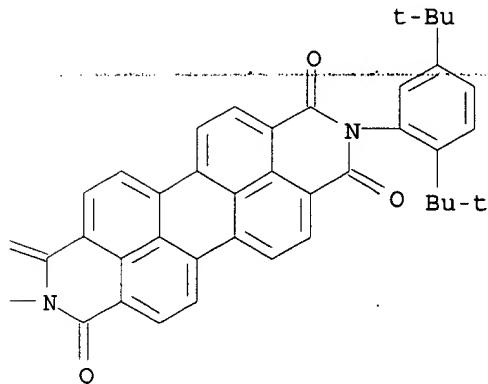
RN 359862-69-4 HCAPLUS

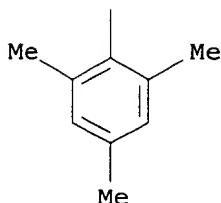
CN Zinc, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-[[4-[[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl]phenyl]anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetronato(2-)]-, (SP-4-2)- (9CI)  
(CA INDEX NAME)

PAGE 1-A



PAGE 1-B





REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 5 OF 6 HCPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2000:367285 HCPLUS  
 DOCUMENT NUMBER: 133:193411  
 TITLE: Naphthalene- and Perylene-Based Linkers for the Stabilization of Hairpin Triplexes  
 AUTHOR(S): Bevers, Susan; Schutte, Susan; McLaughlin, Larry W.  
 CORPORATE SOURCE: Department of Chemistry Merkert Chemistry Center, Boston College, Chestnut Hill, MA, 02467, USA  
 SOURCE: Journal of the American Chemical Society (2000), 122(25), 5905-5915  
 CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Planar perylene- and naphthalene-based diimide linkers can be employed to tether the Watson-Crick and the Hoogsteen strands of a DNA triplex, thus providing conjugates capable of targeting single-stranded nucleic acids with the formation of hairpin triplexes. The planar linkers are designed to bridge the terminal base triplet of the three-stranded complex and provide base-stacking interactions with all three residues. Sixteen complexes have been prep'd., eight with each linker, half with RNA (R) targets and half with DNA (D) targets. The conjugate sequences are composed of two strands of DNA, two of 2'-O-Me RNA (M), or one of each. In comparison to similar complexes formed with a hexa(ethylene glycol) linker, the planar linkers enhance the TM values for the complexes by as much as 28 .degree.C with .DELTA.G values indicating as much as 12.3 kcal/mol of stabilization relative to the simple glycol linker. All sixteen complexes have been characterized by TM measurements and .DELTA.G detns. That .pi.-stacking interactions are present between the linkers, and the nucleobases can be inferred from the quenching of the perylene fluorescence upon complex formation, and the observation of an absorbance vs temp. transition for the naphthalene-based linker at 383 nm and for the perylene-based linker monitored at 537 nm.

CC 33-10 (Carbohydrates)  
 ST Section cross-reference(s): 22  
 fluorescence naphthalene perylene linker hairpin DNA triplex  
 prepn; RNA naphthalene perylene linker hairpin triplex thermal  
 stability prepn; naphthalene perylene linker hairpin DNA triplex  
 thermal stability prepn  
 IT Quaternary structure  
 (DNA triplex; naphthalene- and perylene-based linkers for the  
 stabilization of DNA and RNA hairpin triplexes)  
 IT Fluorescence  
 Thermal stability  
 (naphthalene- and perylene-based linkers for the  
 stabilization of DNA and RNA hairpin triplexes)

IT Exciplex  
     (triplet; naphthalene- and perylene-based linkers for the  
     stabilization of DNA and RNA hairpin triplexes)

IT 215514-46-8P 215514-53-7P 288637-62-7P 288637-63-8P 288637-64-9P  
   288637-65-0P 288637-66-1P 288637-67-2P 288637-68-3P 288877-25-8P  
   288877-26-9P 288877-27-0P 288877-28-1P 288877-29-2P 288877-30-5P  
   288877-31-6P 288877-32-7P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
     (naphthalene- and perylene-based linkers for the  
     stabilization of DNA and RNA hairpin triplexes)

IT 81-30-1 128-69-8 929-06-6  
   RL: RCT (Reactant); RACT (Reactant or reagent)  
     (naphthalene- and perylene-based linkers for the  
     stabilization of DNA and RNA hairpin triplexes)

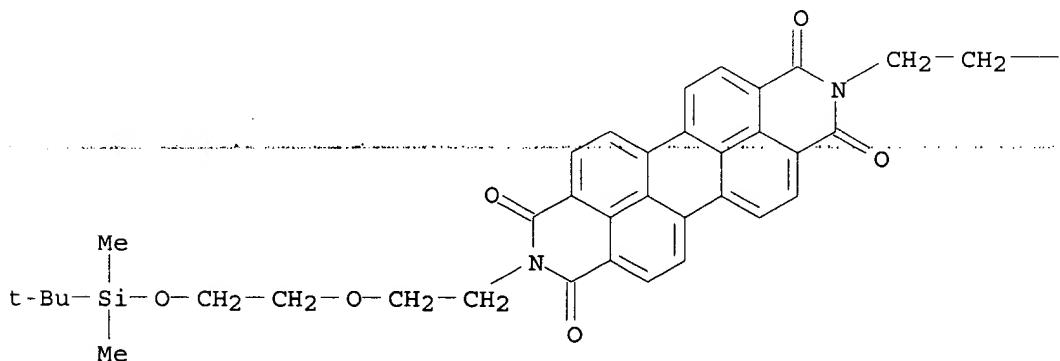
IT 164932-87-0P 215297-15-7P 215297-16-8P 215297-17-9P  
   215297-18-0P 215297-19-1P 215297-20-4P  
   215297-21-5P 215297-22-6P 215514-42-4P  
   RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
     (Reactant or reagent)  
     (naphthalene- and perylene-based linkers for the  
     stabilization of DNA and RNA hairpin triplexes)

IT 215297-18-0P 215297-19-1P 215297-20-4P  
   215297-21-5P 215297-22-6P  
   RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
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     (naphthalene- and perylene-based linkers for the  
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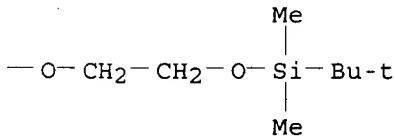
RN 215297-18-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
   2,9-bis[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl] - (9CI)  
   (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

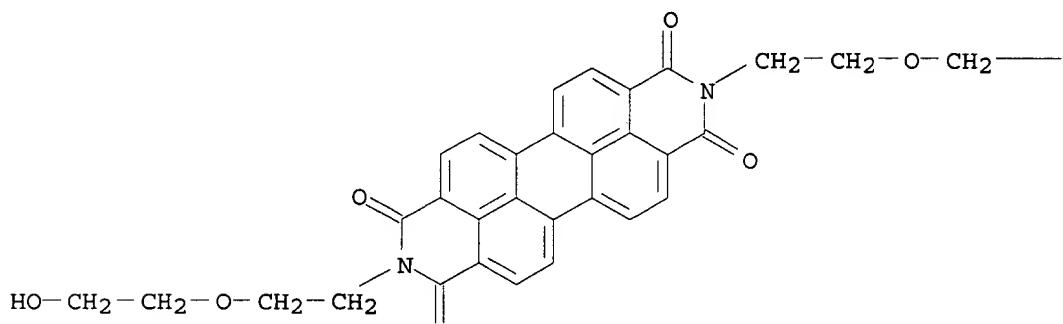


RN 215297-19-1 HCAPLUS

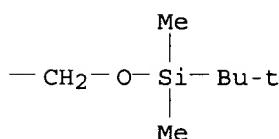
Jon Epperson 09/804, 893

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-[2-(2-hydroxyethoxy)ethyl]-(9CI) (CA INDEX NAME)

PAGE 1-A



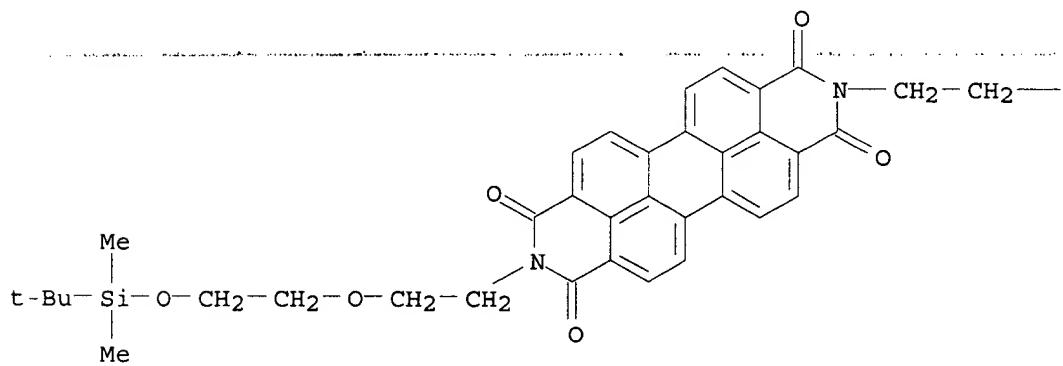
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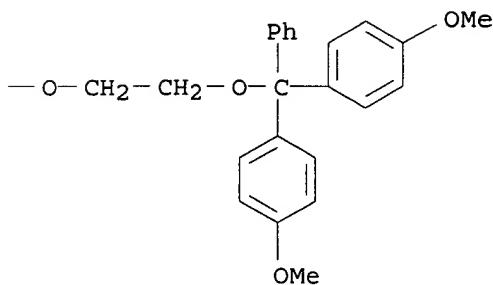
RN 215297-20-4 HCAPLUS

CN Anhra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl] - (9CI) (CA INDEX NAME)

PAGE 1-A



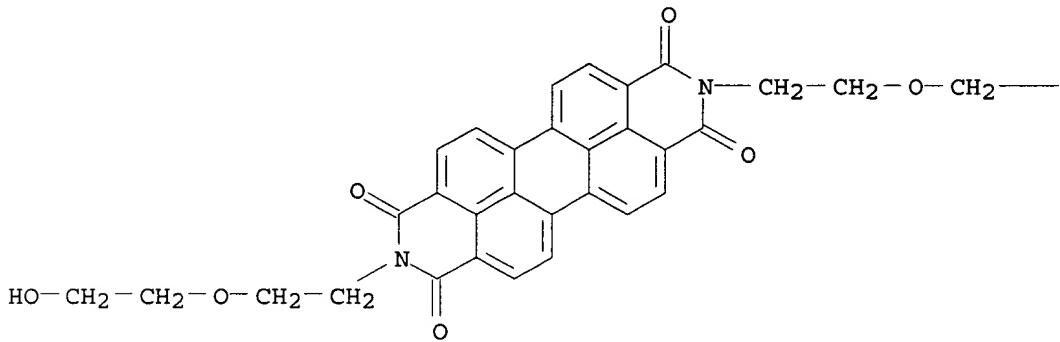
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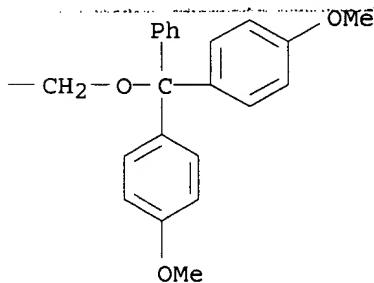
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CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-(2-hydroxyethoxy)ethyl]-(9CI) (CA INDEX NAME)

PAGE 1-A



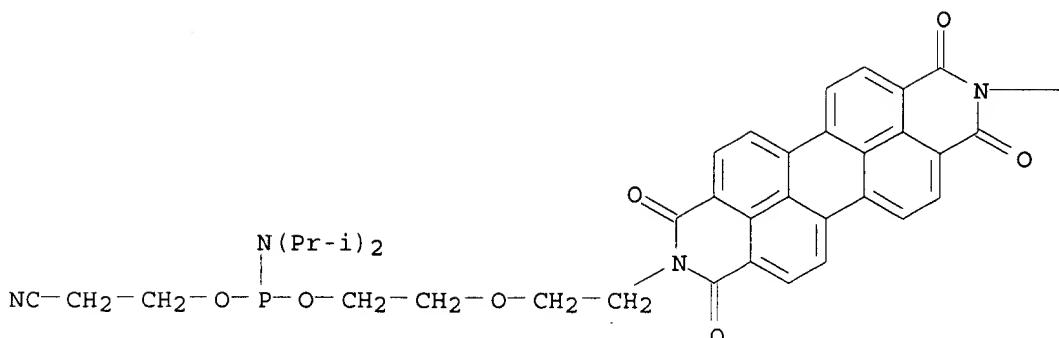
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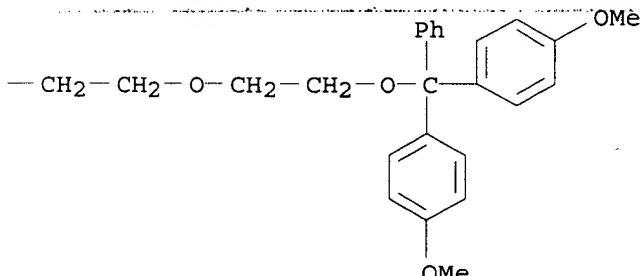
RN 215297-22-6 HCAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 2-[2-[9-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-3,8,9,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl]ethoxy]ethyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



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L20 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:642702 HCAPLUS

DOCUMENT NUMBER: 130:4018

TITLE: Perylene- and Naphthalene-Based Linkers for Duplex and Triplex Stabilization

AUTHOR(S): Bevers, Susan; O'Dea, Timothy P.; McLaughlin, Larry W.  
CORPORATE SOURCE: Department of Chemistry Merkert Chemistry Center,  
Boston College, Chestnut Hill, MA, 02167, USA

SOURCE: Journal of the American Chemical Society (1998),  
120(42), 11004-11005  
CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

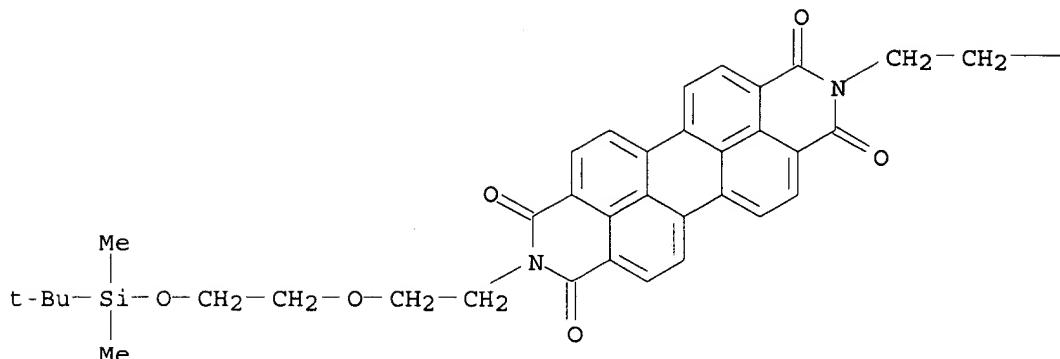
LANGUAGE: English

AB Perylene and naphthalene were chosen for development into planar  $\pi$ -stacking linkers in DNA duplex or triplex preps. Linkers were prep'd. by reaction of the corresponding tetra-carboxylic acid dianhydride with 2-aminoethoxyethanol or its tBDMS deriv. Thermal stabilities of DNA duplex (5'-TCTTTCTT-linker-AAGAAAAGA) or triplex (5'-TCTTTCTT-linker-TTCTTTCT/9-mer or 19-mer) systems. Both the perylene and naphthalene-based duplex linkers showed increased TM values, compared to a duplex tethered by hexa(ethylene glycol), but the perylene linker showed only a small increase over naphthalene, perhaps because it is significantly larger than necessary to bridge the phosphate residues at the terminus of a B-form helix, while the naphthalene-based linker can be

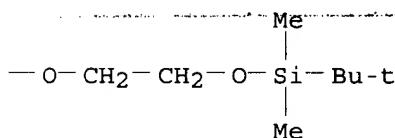
more optimally positioned at the end of a duplex. In triplex formation, the most significant TM enhancements were those that occurred with the 19-mer complex, where the perylene-based linker showed a 19 degree increase at pH 5.5; for both linkers, this is perhaps due to their potential to provide stacking interactions with all three residues, and possibly with the first base residue of the target strand that extends beyond the triplex region.

CC 33-10 (Carbohydrates)  
 ST perylene naphthalene linker DNA prepn solidphase; duplex triplex  
 DNA prepn polycyclic linker  
 IT Nucleic acid hybridization  
 Solid phase synthesis  
 (perylene- and naphthalene-based linkers for duplex and  
 triplex stabilization)  
 IT DNA  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (perylene- and naphthalene-based linkers for duplex and  
 triplex stabilization)  
 IT 215514-38-8P 215514-42-4P 215514-45-7P 215514-46-8P 215514-48-0P  
 215514-53-7P 215587-52-3P 215587-53-4P 215587-54-5P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (perylene- and naphthalene-based linkers for duplex and  
 triplex stabilization)  
 IT 81-30-1 128-69-8 929-06-6  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (perylene- and naphthalene-based linkers for duplex and  
 triplex stabilization)  
 IT 164932-87-0P 215297-15-7P 215297-16-8P 215297-17-9P  
**215297-18-0P 215297-19-1P 215297-20-4P**  
**215297-21-5P 215297-22-6P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (perylene- and naphthalene-based linkers for duplex and  
 triplex stabilization)  
 IT 215297-18-0P 215297-19-1P 215297-20-4P  
**215297-21-5P 215297-22-6P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (perylene- and naphthalene-based linkers for duplex and  
 triplex stabilization)  
 RN 215297-18-0 HCAPLUS  
 CN Anthr[2,1,9-def:6',5',10'=d'e'f']diisoquinoline-1',3',8',10'(2H,9H)-tetrone,  
 2,9-bis[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]- (9CI)  
 (CA INDEX NAME)

PAGE 1-A



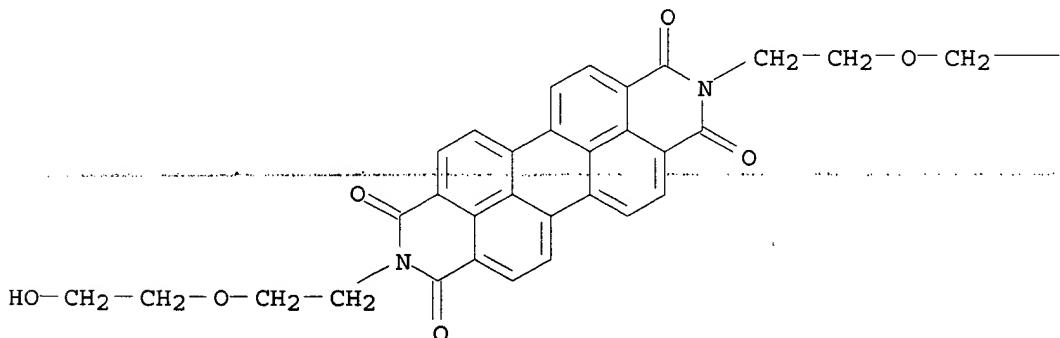
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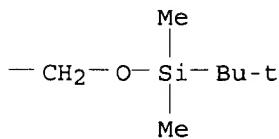
RN 215297-19-1 HCPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
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PAGE 1-A



PAGE 1-B



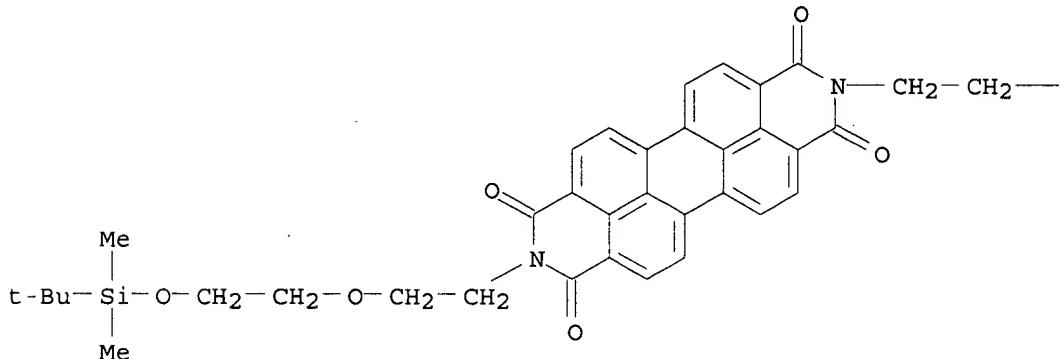
RN 215297-20-4 HCPLUS

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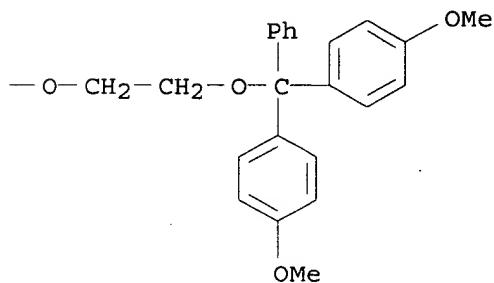
Jon Epperson 09/804, 893

2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxyethyl]-9-[2-[2-[[(1,1-dimethylallyl)dimethylsilyl]oxy]ethoxyethyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

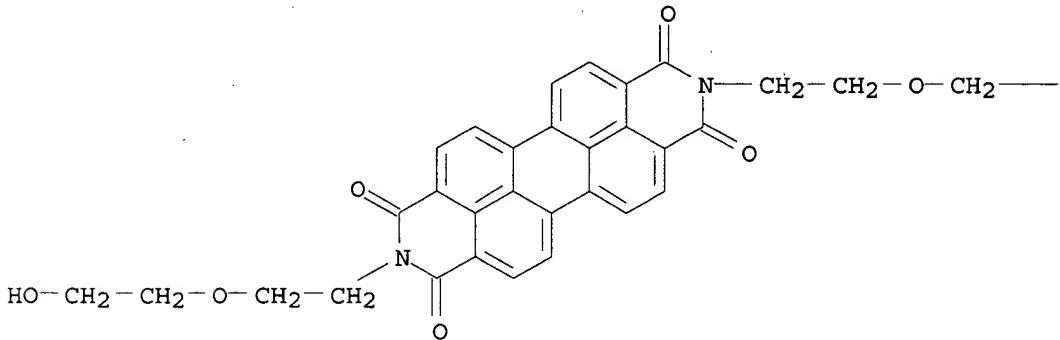


PAGE 1-B

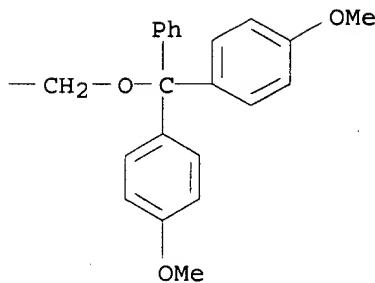


RN 215297-21-5 HCPLUS  
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,  
2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxyethyl]-9-[2-(2-hydroxyethoxyethyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



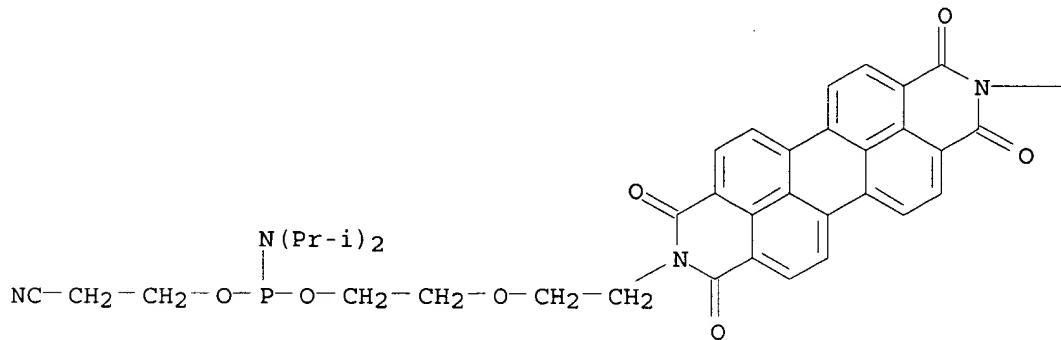
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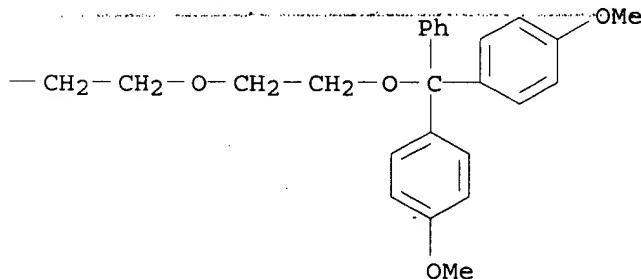
RN 215297-22-6 HCPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 2-[2-[9-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-3,8,9,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl]ethoxy]ethyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



REFERENCE COUNT:

16

THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT